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Sufficiently advanced technology is indistinguishable from magic...

sE | RN17 Stereo Pair

condenser microphone

"The killer capsule is the modified cardioid... an *incredibly smooth, natural sound* **"**

"... *incredible definition* **...this is the best (sE) mic yet."**

Resolution, Jon Thornton
May/June 2011

"...*perfect* **mechanical engineering"**

"The RN17 gives the user a *clean sound* **in a way that is almost shocking...when you work these mics with a good EQ, you get to hear just how** *pure* **the output really is"**

"...*remarkable***"**

Audio Media, Andrew Graeme
July 2011

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RUPERT NEVE DESIGNS sE ELECTRONICS

leader

The new generation of compact digital consoles for live sound has more than just technology to thank for its existence. It has a short(ish) but proud history of innovation in ergonomics, and of great ideas brilliantly realised.

I say 'new generation' carefully, because you could argue that this year marks the first settling of a wide base of product from all major manufacturers. There have been compact digital consoles around for a bit, yes, but their numbers have hardly constituted a generation, and fewer still have been specifically live.

Yamaha has probably been the biggest contributor to the melting pot of binary boards over the years – and it has been a while. The first issue of *Audio Media* featured a Yamaha digital console back in 1991. For those of you who are too scared to calculate it, that's 21 years (I only know of this age from archives). Then Yamaha came to dominate the large live digital console space by being first to tick every box required by the live sound community.

Since a greater pool of manufacturers got involved, the initial focus has been on the large-scale consoles. Maybe the numbers add up better that way – bigger boards and the higher-priced market place justify the initial R&D outlay, or something like that. Maybe it's simply better to go for a market that has already accepted the live digital console, as the ground work has already been done. A share of an existing market is better that no share of a new one.

But now almost everybody has got around to several smaller-scale versions and evolutions of their technologies, and they have learned a huge amount from the pioneering waves of R&D that have preceded them. All have their own angles on helping the live sound engineer operate on instinct and with ease.

As the consoles get smaller, the challenges of a new price bracket and new level of ease-of-use gets added to the list. Regional theatres, touring bands, smaller churches, and even schools have been happily plugging into analogue channels because they cannot justify the cost of replacing something that is still working; and even if they could, the potential digital replacements are easy enough for the audio-centric, but possibly not simple enough for vicars or lighting techs.

Can the challenge be met? It's easy enough to imagine a channel strip that is simpler yet still incorporates digital advantages. Though the tablets are also in the race. Mackie has spilt its plans to do away with physical controls on its next digital board and pin its colours wholly to iPad. I'm not sold on that yet – batteries, breakages, theft, and system updates are just a few of the possible weak links. But then I'm not the target market. And hitting that market dead centre may well be the key to continued success.

Paul Mac, *Editor*

AUDIOMEDIA *is a Sustaining Member of the Audio Engineering Society.*

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*Within Broadcast & Production

On the cover CD...

HHBS' BIGGEST EVER ANNUAL CATALOGUE

Broadcast and pro audio technology specialists HHB Communications has released the HHB 2012 Catalogue, its biggest ever annual catalogue with information on over 2,000 professional audio products and editorial features from industry leading experts.

The HHB Catalogue is a comprehensive guide to the latest pro audio technology for the broadcast, education, music recording, OB, post, radio, television and video games markets. The HHB 2012 Catalogue is the biggest edition yet, featuring information on products for file-based workflow, MADI, audio over IP, HD, loudness, Pro Tools, storage, and many more professional applications. Detailed descriptions, specifications, pictures and pricing for all available items are included.

The HHB 2012 Catalogue is available in print form or in a digital format on an interactive CD-ROM, attached to the front of this month's *Audio Media*.

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MUNRO ACOUSTICS sE ELECTRONICS

NEW FACILITY

Live Sound and Recording Engineer Dylan Ely, who has worked with artists such as Linkin Park and Jennifer Lopez, has launched two new companies in South Texas – The Loop Studios, and Venue Rental and Recording Services. Integral to the launch of both ventures is an Aviom Pro16 Personal Mixing System. Ely has included four A-16II Personal Mixers, an A-16D Pro A-Net Distributor and an AN-16/i Input Module in the studio; and also uses an Aviom Pro16 Series Digital Snake as part of his rental company set-up. "The personal mixers make the musicians very comfortable in the studio because they can manage what they want to hear," said Ely. "Also, I'm not spending a lot of time building their monitors in the studio because they can control and tweak their own stuff as we go along. That has been the biggest advantage."

www.Aviom.com

SUBSCRIBER PRIZE DRAW

Congratulations to Ayesha Zielinski in Perth, Scotland, who is this month's lucky winner of the *Audio Media* subscribers' prize draw. Every month we randomly pick the name of one subscriber out of our magic *Audio Media* hat, and, just like that – they win an sE 4400a microphone. To be entered into the draw, you must have a current digital or print subscription, which you can get by going online to the address below. Good luck!

www.audiomedia.com/subscribe.html

Waves Gets InPhase

Waves Audio is now shipping its InPhase plug-in. Designed for recording, mix, mastering, and live FOH/monitoring engineers, InPhase has been developed to correct phasing issues between tracks. InPhase gives users a comprehensive tool to correct common phasing problems such as drops in volume and faults in frequency response and stereo imaging. The plug-in allows users to align tracks and restore phase coherence. It features high resolution dual waveform displays with up-to-sample resolution zoom, phase shift filters with adjustable frequency and Q, and an intuitive correlation meter, which shows users just how much they are in or out of phase. Users can move their waveforms manually or using the delay control, and even align them in relation to a sidechain input. The phase shift curve window shows users the phase shift curve across the frequency line, the correlation meter shows to what extent tracks are in- or out-of-phase, and the plug-in also features dual second-order allpass filters. InPhase includes mono, stereo and dedicated live components, plus InPhase LT, a simplified version that gives easy access to creative phase manipulation.

www.waves.com

Rode In On Camera

Rode has launched its Stereo VideoMic Pro, which builds on the features of its popular VideoMic Pro by using a matched pair of high sensitivity, half-inch cardioid condenser capsules in a coincident XY pair. The Stereo Video Mic Pro is suited to DSLR, consumer camcorders and large sensor video cameras; an integrated shock mounting system is provided to offer isolation from vibration and mechanical noise. It includes features such as power and equalisation controls, including a high pass filter at 75Hz, a robust multi-strand cable for lower noise transference, and three position level control (-10dB, 0, +20dB). It provides a cardioid polar pattern with a frequency range of 40Hz-20kHz, a maximum SPL of 134dB, and -38dB sensitivity. One 9V alkaline battery provides over 100 hours of continuous use. The microphone's +20dB level boost was specifically designed to provide a higher quality signal with DSLR cameras. When activated, the typical low-quality camera pre-amp level can be reduced, resulting in a lower noise floor and much clearer recording.

www.hhb.co.uk

NEW PRODUCT

Native Instruments has released Evolve, a Kontakt-based instrument created by sound design house Heavyocity, the team behind Damage and the Evolve Mutations series. Evolve offers a full-scale resource for cinematic sound design that brings together a selection of sounds, rhythms and FX, designed specifically for film composers and sound designers. It includes approx. 6GB of sample content.

www.native-instruments.com

PRODUCT SALE

Sonnox is offering a rare 35% price reduction on all plug-ins and bundles throughout the month of March. Available from authorised resellers as well as the Sonnox website, the Spring Sale includes individual Sonnox plug-ins as well as bundles such as the Sonnox Elite Collection which includes: Oxford EQ, Dynamics, Inflator, Transient Modulator, Reverb, Limiter and SuprEsser.

www.sonnox.com

NEW PRODUCT

Sonokinetic has launched Vivace Cinematic Orchestral FX & Textures, a dedicated performance sampling library with over 16,000 samples – 32,000 total combination of 16- and 24-bit. Vivace features tempo-synced tonal cues, each recorded in all 12 keys utilising Sonokinetic's Intelligent Tempo Mapping so that every sample is automatically integrated into any arrangement.

www.sonokinetic.com

AWARD WINNER

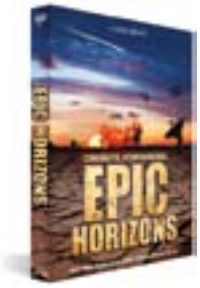
German software manufacturer Celemony has been awarded the Technical Grammy, which is given in recognition of contributions of outstanding technical significance to the recording field. Celemony's Melodyne software is used by countless musicians and producers. "We are delighted by this great honour, and very proud to be receiving such notable international recognition for our work," said company founder and Melodyne inventor Peter Neubacker.

www.celemony.com

NEW USER

Composer and Producer Andy Gray, who has written soundtracks for films such as *Zoolander* and *Get Carter*, as well as producing, co-writing and re-mixing artists such as Tori Amos and Radiohead, has added Sontronics microphones to his collection. "I've been using their ribbon mics, and now I'm also using their new drum mics plus HALO on guitar cab," he said. "HALO is amazing on guitar."

www.sontronics.com



NEW PRODUCT

New from Zero-G is Epic Horizons: Cinematic Atmospheres, a library featuring over 850 instruments in EXS24, Kontakt and NN-XT formats as well as standard Acidized Wav files and Apple Loops, with textures, ambiences, soundscapes, drones and FX ideal for adding scale and intensity of emotion to film, TV or video game soundtracks.

www.timespace.com

NEW USER

Metropolis Studios in West London, currently celebrating 20 years in the music industry, has taken delivery of two pairs of Focal Twin6 Be monitors for Studios A and B. The engineers at Metropolis spent four weeks evaluating many different monitors before choosing Twins; Focal said it is "very proud to have had its monitors selected."

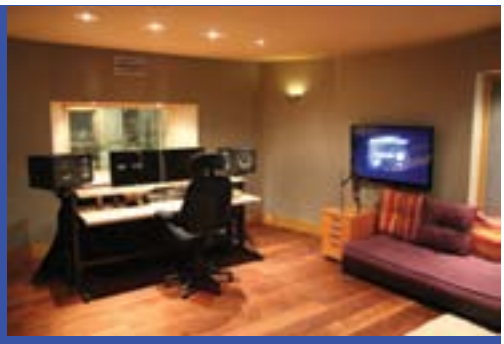
www.focal.com

NEW PRODUCT

Camel Audio has announced three additions to its 'powered by Alchemy' range of sound libraries: Dream Voices, Himalaya: Vantage, and Biolabs: Dark Space.

www.camelaudio.com

Open House For SM9



Focal recently demo'd it's new SM9 active studio montiroing system at an open day hosted by French DJ.Producer Joachim Garraud's Zemixx studios (see page 48 for an interview with Garraud). Production versions of the SM9, which was first seen at last year's ProLight + Sound show, Frankfurt, had been delayed, though shipping is now due to start affter this year's PL+S.

Focal points to the system's stereo imaging, detail, and dynamic reproduction as three of the monitor's main strengths, though its headline feature is its ability to switch between two different monitor types within a single cabinet. The SM9 can be either a three-way or two-way monitor, determined by a switch on the side of the cabinet – thus offering two distinct reference types in a single unit.

SM9s incorporate a number of innovative Focal technologies, including the pure Beryllium inverted dome tweeter – able to cover more than five octaves (1000Hz – 40kHz), the 'W' composite sandwich cone – used in both low and mid-range drivers, and the passive radiator.

www.focalprofessional.com
www.scvlondon.co.uk

Maag Plugs In To EQ4

New American pro audio plug-in company Plugin Alliance has announced the availability of the Maag Audio EQ4. It is US-based elite audio gear manufacturer Maag's first plug-in, and models the company's EQ4 500 Series one-channel, six-band equaliser as a Mac OS X, Windows and VENUE compatible plug-in. The EQ4 is used by many producers and has been applied to countless famous vocalists, such as Madonna, Celine Dion, and Black Eyed Peas. The Maag Audio EQ4 plug-in offers tight low-end capabilities, plus Maag Audio's Air Band technology, a sweepable high-frequency filter that goes up to 40kHz.

The EQ4's bandpass filters all interact with each other; increasing the Air Gain (+15dB) also slightly increases the overall gain as the Air Band interacts with the other bandpass filters. The plug-in can compensate for added overall gain by lowering the five bandpass potentiometers in equal amounts to ensure the EQ remains the same shape, yet lower the overall gain. The EQ4s extra Level Trim feature can also be used to lower overall gain, if needed.

www.plugin-alliance.com

FIELD REPORT

German company Ambient Recording has developed a special recording system for the first ever commercial documentary to feature underwater surround sound, with a Sound Devices 788T multi-track digital audio recorder at its heart. The documentary – *The Cannon Crackers of the Pistol Shrimp* – features one of the loudest animals on the planet.

Ambient Recording designed seawater-resistant aluminium housing for the Sound Devices recorders, with a top made out of 4cm thick Plexiglass to offer perfect sight on all meters and displays. Power, record, stop and volume functions can all be controlled through the housing, which is waterproof up to 100m.

www.sounddevices.com

NEW PRODUCT

Empirical Labs has unveiled the DocDerr, a new API 500 series multi-purpose channel strip. The tone enhancement module houses six different sections of digitally controlled analogue processing. A super low-noise pre-amp is followed by four sections of EQ offering one selectable high pass and three parametric bands. The dynamics section provides Empirical Labs compressions, as well as a tape emulation circuit to soften high frequencies and clips. A Mix knob allows users to blend the uncompressed EQ's signal with the compressed and saturated signal. Inputs and outputs are DC coupled.

www.empiricallabs.com

MARQUIS MAKES CONVERTS

Marquis Broadcast, specialists in content workflows and media integration software, has unveiled X2Pro Audio Convert, its new conversion application for delivering Final Cut Pro X projects to Avid Pro Tools for audio finishing. X2Pro uses Marquis' Media Highway, the core technology employed by Marquis' media integration products, to integrate Final Cut Pro X into professional audio workflows. X2Pro converts the exported Final Cut Pro X XML into an AAF file, which Avid Pro Tools can open as a session, delivering seamless integration between the two applications.

www.x2pro.net

GRAMMY WAVES

M3 (Music Mix Mobile) installed the Waves Loudness Meter (WLM) plug-in in its two remote trucks broadcasting the 54th Annual Grammy Awards. The move allowed all essential 5.1 and stereo mixing to be displayed in line-of-sight with the broadcast monitor screen. The previous set-up in the trucks required the music mixer to look in two different directions in order to take in all the metering. "Visually it didn't work with the eye too well," said Joel Singer, Engineer-in-Charge at M3. "We were able to utilise the WLM and its greater visibility and functionality on our front monitoring system for this show. The new set-up worked out perfectly."

www.waves.com

A Little Touch

RTW has launched a small version of its TouchMonitor, the TM3. The compact TM3 has a 4.3-inch touch-screen and has been designed to provide all the information required for accurate sound level and loudness management for the small studio, OB van, or control room. It is available in two or six channel version for stereo or 5.1 surround applications. The TM3 provides PPM metering with analogue and digital scaling, peak hold and zoom modes, phase correlation, an AES3 status monitor plus the LRA Loudness Range display.
The Loudness/SPL measurements are compliant with EBU R128, ITU BS.1772, ATSC A/85 and ARIB.

RTW has also announced a partnership with Studer which will see the RTW TM7 TouchMonitor fully integrated into the Studer Vista range of digital audio consoles. RTW will provide a special version of the TM7 TouchMonitor that will be built into the meter bridge of the Vista 9 and Vista 5 M2 consoles. Studer chose the TM7 meter because it complements Vistonics, the touchscreen user interface used with Vista. The TM7 will include custom meter presets offering loudness metering that meets EBU R128 and ITU BS1770 standards as well as traditional bar graph and moving needle metering to comply with additional international standards. The TM7 will also be available for retrofitting to all Vista 9 consoles.
www.rtw.de

SSL In The Centre Of Manhattan

Manhattan Center Studios has recently upgraded its Studio 1 TV production facility, choosing a Solid State Logic C10 HD Compact Broadcast Console to handle audio production for its TV1 Control Room. Recent programmes produced using the new C10 include BBC America's new Would You Rather...? With Graham Norton and Yes Network's Centerstage. Manhattan Center Studios encompasses the Hammerstein concert space featuring 75-foot ceilings, The Grand, a 10,000 square foot space seating 1200 people, two audio recording studios and two large TV production studios with associated edit suites. While the C10 in the TV1 Control Room is primarily used for Studio 1 productions, the console can service the audio needs of any of the Manhattan Center's recording or production spaces through a 256-channel router. "We really needed to move into the future and the C10 allows us to do just that," said Travis Butler, Chief Engineer at Manhattan Center Studios. "The console addresses how we need to work, and because of the industry standard design, the C10 is also familiar to many of the outside engineers we bring in for special sessions."
www.solidstatelogic.com

MORE FRENCH ECLIPSES

Radio France has just invested in its third Eclipse digital console from Innovason. The national broadcaster already owns seven Innovason desks, including two Eclipses. "I felt it was important that we have a back-up console that could be available quickly for the studios that are broadcasting every day," said Head of Sound Reinforcement at Radio France, Bruno Lompech. "Our decision to invest in a third Eclipse was also motivated by a desire to remain consistent in terms of our existing inventory and our user group."

www.innovason.com

LAWO UPDATED

Lawo has announced the version 4.16 software release for the mc2 series mixing consoles. The software update includes the doubling of the available DSP channel count. After the v4.16 software installation, the current DSP boards offer 96 channels instead of the 48 channels previously available. Also in this release are Lawo-developed Broadcast Channels that offer a feature set adapted specially for broadcast applications, using a simplified signal flow while maintaining sound quality.

www.lawo.ca

MORE IN PANDORA'S BOX

Wohler Technologies has announced a new software release for its Pandora portable loudness analyser. Pandora monitors up to eight channels of audio embedded in 3G/HD/SD-SDI or eight AES channels and, through the Wohler Loudness application, allows users to monitor, analyse and demonstrate audio loudness on an iPad or iPod Touch. Added features and capabilities include compatibility with ITU-R BS.1770-1 as well as ITU-R BS.1770-2 and EBU R-128; faster, more convenient and more frequent measurement display updating; and improvements to Pandora's gating function.

www.wohler.com

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Rewarded With Awards

The 84th Academy Awards took place on February 26 in Los Angeles, with Billy Crystal hosting this year's showbiz shenanigans. The Sound Editing Oscar went to Philip Stockton and Eugene Gearty for their work on Martin Scorcese's *Hugo*; while the Sound Mixing award was also went to *Hugo*, with Tom Fleischman and John Midgley walking away with the statue.

Also taking place in Los Angeles last month was the 59th Annual MPSE Golden Reel Awards, which honour the year's best work in various areas of sound editing for dialogue and ADR, effects and foley and music. The sound team on Steven Spielberg's *The Adventures of Tintin* won the Best Sound Editing: Sound Effects, Foley, Dialogue and ADR in an Animation Feature Film; the same award for Television went to those who worked on *The Penguins of Madagascar: The Return of the Revenge of Dr Blowhole*. Martin Scorsese's *George Harrison: Living In The Material World* documentary picked up the award for Best Sound Editing in a Feature Documentary; while Scorsese's other big movie of the year, *Hugo*, won Best Sound Editing: Music In A Feature Film. *The Muppets* sound editing team took home the Best Sound Editing: Music in a Musical Feature Film prize. Best Sound Editing: Dialogue and ADR in a Feature Film went to J.J Abrams' *Super 8*, and Best Sound Editing: Sound Effects and Foley in a Feature Film was awarded to the team from *War Horse*. A full list of nominees and winners can be found at the websites below.

www.mpse.org
www.oscar.com

PRIME FOCUSING ON TRINNOV

A 5.1 Trinnov MC Optimizer system has been installed at the London home of Prime Focus. The group's Soho-based facilities offer a range of post-production services, with the studios handling sound for TV documentaries, TV advertising and cinema post production. Studio 4 was built in 2009 and is the company's flagship audio room. While it was producing excellent results in 5.1 for its HD television clients, the audio team wanted to enhance the mixes it produced for film.
www.trinnov.com

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FIELD REPORT

Allen & Heath's iLive system was selected to manage a three week run of performances held at the o2 in London, featuring over 100 bands. The December Sessions were a series of free performances to celebrate emerging UK talent, hosted festival-style on an outdoor stage in the London Piazza at the o2. Allen & Heath's iLive digital system managed the gigs, with an iLive-T112 Control Surface at FOH and iLive-T80 on monitors, with iDR-48 MixRacks.
www.allen-heath.com

FIELD REPORT

DPA's new d:fine headset microphones have been used for the musical Lelies, a Judas Theatreproducties production at the Antwerp Fakkeltheater. Audio equipment was provided by Stage Unit, whose Managing Director Toon Van der Veken suggested the d:fine single-ear headsets. Omni-directional versions of d:fine were used, supplied by DPA's Benelux distributor Amptec. "The single earpiece offers a huge improvement in contact noise compared to other headbands," said the musical's composer, and Managing Director of Judas Theatreproducties, Sam Verhoeven.
www.dpamicrophones.com

APG Goes Upstairs At Opera House

London's Royal Opera House has installed an APG MX1 sound system in its Clore Studio Upstairs; a versatile venue used as both a ballet rehearsal studio and a performance space in its own right with its own programme of workshops, events and small-scale performances for audiences of up to 200. It offers a 'laboratory' environment in which independent artists, small-scale companies and Opera House personnel can experiment and collaborate.

RPG's Paul Nicholson explained that Martin Adams, Head of Sound at the Royal Opera House, had been looking for a solution for the Clore Studio for a while. "Martin wanted something that would deliver high quality speech and light music programme material across the whole of the audience seating area, which occupies the full width of the room, but is quite shallow. Furthermore, the ceiling is very low over the seating area," said Nicholson. "The system had to be neat, compact and as visually unobtrusive as possible, so I suggested that he try out the APG MX1s."

"As sound systems go, this one may not be huge, but it has nevertheless made an enormous difference to the quality of the audience experience in the Clore," said the Royal Opera House's Martin Adams.
www.apg.tm.fr

DiGiCo Does The Grammy Awards

DiGiCo live music consoles were chosen for the 54th Annual Grammy Awards ceremony in Los Angeles, as specified by show production partner ATK AudioTek. A combination of five of DiGiCo's newer SD10 consoles, along with an SD7, handled FOH and monitor duties, with a total of 400+ I/Os and 256 mic preamps distributed between six SD racks, among four engineers in three locations within the Staples Center arena. The entire PA system was powered by an Opticore fibre optic network, which tied the consoles together and allowed the signal path to stay completely digital.

"By using the best and most advanced tools, we guarantee the highest fidelity for every performance," said ATK's Production Mixer Mikael Stewart. "The sonic quality of the DiGiCo consoles was one of the biggest assets this year, in addition to the Opticore infrastructure that allowed complete flexibility and accessibility."
www.digico.org

NEW PRODUCT

QSC Audio Products has announced the next generation of Q-Sys products. The Core 500i and Core 250i provide advanced centralised processing, routing and control for contractors and consultants needing a solution for smaller venues such as restaurants, nightclubs, shops, schools and churches. The two new Core models are fully integrated solutions, each with eight card slots on-board. The Core 500i is capable of up to 128 network channels, while the Core 250i provides up to 64 channels. I/O is selectable via the various Q-Sys I/O cards.
www.qscaudio.com

NEW PRODUCT

Aviom is now shipping its AllFrame Multi-Modular I/O System.

The system eliminates several expensive and labour-intensive stages of the signal chain while reducing cable clutter, making it useful for permanent installations such as theatres or conference centres, as well as touring and portable live sound applications. At the heart of the system is the F6 Modular I/O Frame, a multi-purpose network frame with six field-configurable I/O card slots and integrated Cat-5e and fibre optic connectivity. The F6 can be outfitted to meet the audio I/O requirements of nearly application.
www.aviom.com

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www.allen-heath.com

NEW PRODUCT

Hosa Technology has released a new addition to the Mogan Microphones brand of subminiature microphones. The Mogan Elite Omni Earset Microphone has a moisture-resistant, 2.5mm omni-directional capsule with -45dB nominal sensitivity that is designed to be positioned further from the user's mouth.

The microphone is designed to deliver natural, resonant sound quality for live sound and features an earpiece that can be worn comfortably for extended periods.

www.hosatech.com

PRODUCT INSTALL

The new Westfield Stratford City shopping centre in East London – the largest urban shopping centre in Europe – has installed a HALO line array system from EM Acoustics for the main performance space as well as a portable system for Westfield's smaller event spaces. The main performance space is a multi-purpose event area that hosts fashion shows, product launches, exhibitions, concerts and film premieres.

www.emacoustics.co.uk

Indian Superstar Outlines In Dubai

AR Rahman, the Indian megastar composer, singer-songwriter, record producer and musician recently performed at the Dubai Cricket Stadium, with coverage from a compact Outline Butterfly system. The musician, who has written film scores for movies such as Slumdog Millionaire and 127 Hours, as well as being a member of Mick Jagger's new band Superheavy, played to a capacity crowd at the venue. The Dubai Cricket Ground poses particular challenges for visiting production companies, being known for its 'slapback' echo, generated by a combination of the roof covering the seated area, the huge video screens and the plastic material used to protect the playing surface during events. Outline's Senior Technician Francesco Ferretti tuned the system using the company's Open Array 3D prediction software, which kept the unwanted reflections to a minimum.

www.outline.it

Winter Games For L-Acoustics

An L-Acoustics Kara/Kiva WST line source system was installed for the first Winter Youth Olympic Games in Innsbruck. Innsbruck's city centre hosted a packed programme of events at Medals Plaza, with not only the daily Victory Ceremonies but also the week-long Innsbruck 2012 Music Festival taking place. A set-up had to be found to cover the very wide range of musical styles, plus the Victory Ceremonies, taking into account the 90dB limit set by the city. L-Acoustics Soundvision 3D acoustic simulation programme was used to create a system that guaranteed optimal sound and speech intelligibility at every listening position.

www.l-acoustics.com

FIELD REPORT

Audinate's Dante provided the networking backbone for UAE's 40th National Day. The ceremony took place at Zayed Sports Stadium, which was covered by eight hangs containing L-acoustics Kudo, SB218, VDOSC, D-VDOSC, 108XTs, Kiva, Kilo and other various distributed speakers, all controlled by 17 Lake LM26 Processors, 3 Yamaha DME Processors, 6 XTA Breakout Boxes and connected by a Dual Redundant Fibre-optic IP network. The Lake LM26 processors, which were distributed throughout the system, providing crossovers, EQ and time alignment, were all connected by Audinate's Dante networking technology.

www.audinate.com

NEW PRODUCT

Avlex has introduced four new low profile single earset microphones: the HSP-39, HSP-29, HS-38 and HS-28. All four models combine an omni-directional condenser element with an interchangeable earhook design. Each model provides three sizes of interchangeable earhooks that facilitate secure and comfortable placement on either ear. All models also use a malleable stainless steel boom that is extremely light and offers maximum flexibility.

www.avlex.com

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Show Preview

Prolight + Sound Preview

As sure as the earth goes round the sun, Spring rolls around and everyone who is anyone in the audio world decamps to Frankfurt for the Prolight + Sound show. Plan your visit with our handy preview.

This year's Prolight + Sound mega-show is taking place from March 21-24, in its usual venue of the Frankfurt Fair and Exhibition Centre. If you're an audio professional (and I think we can assume that you are, given that you're clutching a copy of *Audio Media*), the Audio and Sound system halls are the places to head: Hall 6.1 has microphones, PA systems and accessories, while Hall 8.0 offers portable sound, concert sound, installed sound, microphones, networks, production, and broadcast. There are always crossovers between disciplines, and with Musikmesse taking place at the same time, the other halls will probably have products to interest too. On the outdoor exhibition area, the Concert Sound Arena and the Portable Sound Arena will showcase large-scale stage constructions and small and large scale PA systems operating in realistic conditions.

PL+S offers a comprehensive view of what's going on in the sound world; it is the biggest international fair of technologies and services for events, installation and entertainment. Last year there were 876 exhibitors from 40 countries, presenting products and services to almost 34,000 visitors. There are several awards ceremonies held at PL+S. The Opus German Stage Award is given out for the creative use of lighting, sound, video and stage technology for theatre or stage productions; and the Sinus Systems Integration Award honours innovative solutions in the field of media technology and systems integration.

There are too many product launches to mention in a short preview, but we have picked a few you might like to look out for. SPL is bringing a rack full of novelties to the show, including 13 brand new units of its Analog Elemental Series. APG has several new products to show off, including its super-compact DX8 monitor. DPA will be launching a new vocal microphone, while British pro audio mixer manufacturer Allen & Heath will be unveiling a new ZED mixer, the ZED60-10FX – based on its ZED-10FX model with the addition of premium quality 60mm faders. Italian loudspeaker manufacturer dBTechnologies is releasing a wide selection of new products, among which will be the upgraded Opera DX line and the launch of three brand new DVA Subs. PreSonus will be proudly displaying its new Qmix wireless monitor-mix control for iPhone or iPod Touch and the new BlueTube DP2 and TubePre V2 tube mic preamps.

This is just a tiny taste of the full flavours that will be on the menu at Prolight + Sound – we'll see you there.

EVE audio, a new monitor manufacturer from Berlin, Germany, will be launching at PL+S. It was founded and is owned by Roland Stenz, former CEO at ADAM Audio from its inception in 1999 till late June 2010 – making the new company's name an interesting choice.

After leaving ADAM, Stenz put together an R&D team to try and redefine what a studio monitor means today, deciding against off-the-shelf components; thus the new EVE Audio line is designed from the ground up.
The result is a complete range of active studio monitors. All monitors from EVE Audio house a tweeter technology based on a revised air motion transformer , claimed to be different from any similar product on the market.
www.eve-audio.com

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www.solidstatelogic.com

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2012 BAFTA Videogame Nominations

This year's nominations for Audio Achievement are:

Batman: Arkham City
Battlefield 3
Call of Duty: Modern Warfare 3
Dead Space 2
The Nightjar
Uncharted 3: Drake's Deception

This year's nominations for Original Music are:

Assassin's Creed: Revelations
Batman: Arkham City
Deus Ex: Human Revolution
L.A. Noire
The Elder Scrolls V – Skyrim
Uncharted 3: Drake's Deception

The winners will be announced at The GAME British Academy Video Games Awards, which take place at the London Hilton, Park Lane on March 16, 2012.

The Gorfaine/Schwartz Agency Expands Euro Composer Roster

The Gorfaine/Schwartz Agency, widely recognised as one of the entertainment industry's pre-eminent organisations for representing music talent, boasts a star-studded movie and TV composer roster featuring such luminaries as John Williams, Michael Giacchino, James Newton Howard, Alan Silvestri, James Horner, Thomas Newman, Harry Gregson-Williams, W.G. Snuffy Walden, Mark Snow, and Gabriel Mann.

It also represents an elite rank of highly decorated composers currently working in interactive media whose diverse portfolio includes *Assassin's Creed* (Jesper Kyd), *Call of Duty: Modern Warfare 3* (Brian Tyler) and *Dead Space* (Jason Graves). And now, its videogame ranks have been swelled with four new Euro-composer signings:

Richard Jacques (*James Bond 007: Blood Stone*, *Littlebigplanet 2*) BAFTA Original Music Nomination, Ivor Novello Best Original Video Game Score Nomination, GANG Best Original Instrumental Award.

James Hannigan (*Harry Potter*) BAFTA Award Winner and 5-time Nominee.

Ian Livingstone (*Total War*) Ivor Novello Best Original Video Game Score Award.

Boris Salchow (*Resistance 3*) Classical MPR 2011 Best Soundtracks.

A talent agent for The Gorfaine/Schwartz Agency since 1993, Cheryl Tiano originally studied music composition at Berklee College of Music and California Institute of the Arts, where she also found passion for the business side of the music industry. She then spent several years working with prestigious concert music organizations including the Monday Evening Concerts at The Los Angeles Country Museum of Art, which was well-known around the world for its performances and premieres of original concert works by 20th Century composing icons. Today her role is representing extraordinary composers for all forms of visual media. In addition to her extensive work as an agent in the film and television arenas, she spearheaded the agency's interactive division.

Speaking from Burbank, California, Ms Tiano told Audio Media:

"I believe interactive entertainment is the medium of choice for the 21st Century. When it was first made known to me I became very intrigued with the world of games and found it consisted of some of the most interesting, intelligent, and creative people I have ever known. I became really passionate about it and decided that, in addition to film and television, interactive media should be a major focus for our agency. It's now an incredibly significant part of our business.

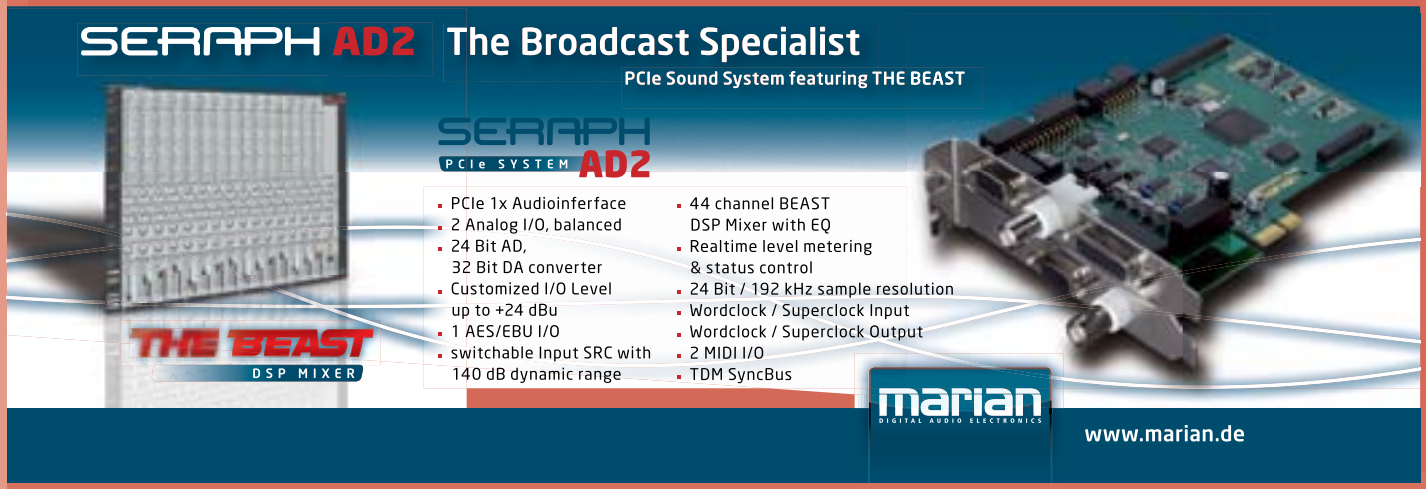
Cheryl Tiano.

"In games, I generally see composers being treated with an enormous amount of respect and often afforded a great amount of creative freedom. I would say that's why a lot of our composers who write for films want to score games because they enjoy the process. And the people they're dealing with are often very creative - it's an amazing collaborative experience.

"I believe the game soundtrack business is also growing in significance – one thing I find really wonderful is how, to the person that's playing the game, the music is such a rich part of the experience. They're hearing the music over and over unlike with a film where you hear the music once. It's very much a part of the game players' lives – the first time I went to a Video Games Live symphony concert of videogame music, I was totally blown away. The fans know every note of the music and it's a great way of keeping orchestral music alive for younger people."

GSA composers are set for another benchmark year in 2012 working on highly anticipated AAA videogame titles such as Darksiders II, Far Cry 3, Prey 2, and many others to be announced.

www.gsamusic.com



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E-V Systems at the Four Hills Tournament

What the four Grand Slam tournaments are to tennis, and the four Majors to golf, the Four Hills Tournament is to ski jumping. The four legs (Oberstdorf, Garmisch-Partenkirchen, Innsbruck and Bischofshofen) of the Vierschanzentournee, as it's known in the vernacular, are the competitions that are the most keenly contested, the most widely watched, and in which victory carries the most prestige. Such has long been the case. In fact, this winter's was the sixtieth edition of the tournament, so the level of interest among spectators and in the media was especially high.

Despite adverse weather conditions, over 18,000 fans made their way to Garmisch-Partenkirchen on New Year's Day to watch the tournament's second leg. To ensure spectators were kept abreast of the unfolding competition and their spirits maintained during lulls in the action, for the fourteenth year running the organisers hired TC Showtechnik of Weilheim to provide the sound reinforcement.

With the experience of previous events to guide them, the team led by Managing Directors Martin Schulze and Stefan Rehthaler has been steadily refining its sound reinforcement design over the years; however, in 2012 they introduced a significant novelty by adding an Electro-Voice XLC line-array to the mix.

"In previous years we used an XLD, but whilst we remain fans of that system - its new 90-degree enclosures really add to the fun – we decided that here in Garmisch, with a spectator area of over 160 metres to cover this year, a double eight-inch system would be hard-pushed to cope."

Since the position of the PA towers also had to be changed, Schulze, Rehthaler & Co. decided something larger was called for: an XLC system composed of 127DVX array elements. Whilst the two systems are of equal excellence in terms intelligibility and ease of use, the longer throw of the XLC's tweeters made it the more logical choice this year.

On the 14m-high main tower, 12 XLC enclosures complemented by eight Dynacord V 17 and nine Dynacord V 18 PWH subwoofers, flown and stacked respectively, provided not only the high sound pressure levels needed but first class intelligibility into the bargain. To ensure homogeneous coverage throughout the spectator area, TC Showtechnik put in place a delay system comprising two XLVC line-arrays made up of 12 Electro-Voice XLE elements each. These were driven by Electro-Voice CPS 8.5, CPS 4.10, and CPS 4000 power amplifiers, while in the VIP tent Dynacord D 8 loudspeakers and an MP7 power mixer held court.

"In Electro-Voice, we have a truly innovative manufacturer on our side," says Schulze. "In Garmisch, we opted for an N8000-1500 controller with eight analogue and eight ASEBU inputs as well as eight analogue outputs for the FOH along with CPS multichannel amplifiers. An additional N8000-1500 digital audio matrix was used at the PA tower. This had 16 analogue output channels as well as eight of the ASEBU outputs used by the CPS amplifiers.

"The two controllers were integrated by means of DM-1 cards to create a Dante audio network. IRIS-Net software made it possible to supervise and control all the audio components at all times. Multiple digital matrix controllers forming a single digital network controlled by a portable computer – no other manufacturer offers that kind of flexibility."

Renkus-Heinz in Hamburg's Beatlemania

Almost half a century after their first gig in the city, The Beatles finally came home to Hamburg when the concept of a permanent interactive exhibition dedicated to the Fab Four became a reality, with a Renkus-Heinz loudspeaker system powering an immersive cinema experience.

Situated at the end of the Reeperbahn, in Hamburg's famous red-light and club district, and close to many of the venues where the band performed, Beatlemania is a 1,300m2 celebration over five floors of the Liverpool band, from their early days in Hamburg's Indra club and Kaiser Keller to their break-up in 1970.

Technical partner for the ambitious project was Hamburg-based Amptown System Company (ASC), who designed and installed audio, lighting and video technology and integrated media systems. The client brief also called for a ticketing system using RFID technology to coordinate ticket desks with visitor flows, guide visitors through the exhibition in an enjoyable way, guarantee safety, generate meaningful visitor statistics without involving staff in time-consuming data analysis, and meet data protection requirements by deleting visitors' personal details at the end of their visit.

From the Port of Entry, where you collect your passport-style ticket, visitors to Beatlemania embark on a journey through the exhibition's 11 different spaces, each focusing on a different stage of the band's career. Step into a stretch of street in the district of St Pauli, lined with shop windows and nightclubs from the 1960s, and wander through the dimly lit Backstage Area with its old jukebox and threadbare sofa, to Abbey Road Studios, where you can listen to a recording session.

From the studio, a connecting walkway plastered with photos and press cuttings takes you to the heart of the exhibition, Beatlemania itself, where a purpose-designed cinema transports you straight into the biggest live performances by the Beatles in 1966.

To achieve the ultimate immersive experience, ASC chose a Renkus-Heinz system to power the sound, using Renkus-Heinz CFX81s for their combination of high audio quality and compact design.

"We wanted to build a creative exhibition that could be developed – not a museum," says Ulrike Salten, Project Manager for FKP Ausstellungs-und Betriebs GmbH, the company behind Beatlemania. "ASC was the only supplier who could deliver the technical media expertise and the solution."

New Distribution for Audient

Following a strong period of growth in sales in Germany, audio manufacturer Audient is now supplying dealers directly. The decision to change the distribution strategy in this territory was taken with a view to developing a closer relationship with customers and dealers. To coincide with this new set up, Sales Manager Simon Horn joins the team, providing a contact point for current and future Audient customers in Austria, Switzerland, and Germany.

Initially based in Audient's UK headquarters, Horn is handling sales and support, as well as being at the forefront of business development in this region. Sales & Marketing Director, Luke Baldry, explains, "Having developed direct relationships with our dealers in the UK and US and seen the benefit to sales and support that this has brought, we're very excited to be able to offer this service to our German customers too."

Kiva Installed into Historic Concert Hall

L-Acoustics certified provider Soundhouse has installed a Kiva WST modular line source system into the Max Littmann Saal concert hall in Bad Kissingen.

The historic concert hall, built in 1913 and panelled in cherry wood inlaid with ebony, can accommodate 1,160 people and specialises in classical music and spoken word performances through to blues and rock music. When the time came to upgrade its sound system, the major requirements were low weight, wide and controlled coverage, and low visual impact.

Soundhouse installed a left/right system of eight Kivas and two Kilo low frequency extension units per side, driven by LA8 amplified controllers. "This system provides an appropriate sound coverage while remaining almost invisible in this historic environment," says Christoph zur Loye from Soundhouse. "It can be configured for floor and/or balcony coverage depending on the seating situation and number of visitors."

After installation, the sound team at the venue declared themselves very impressed with the sound performance and appearance of the rig. "The system is just right in size, appearance and its excellent scalability for the sophisticated ambience of the Max Littmann hall," says the venue's Ulf Seyring.

Dynacord Hosts Russian Installers

The latest Dynacord Academy took place in Straubing recently. Academy organisers Irmgard Danner and Andreas Köstlinger welcomed around 40 system integrators and installers from Russia.

Accordingly, the presentation of the complete mixer, loudspeaker, and electronics product portfolio was tailored to the needs of the installation audience. For example, the participants discussed the Powermate with regard to its DJ function for small installations in bars and pubs. Other themes included DSP 600 and P64 processing, DSA amplifiers, and VariLine Series loudspeakers, hands-on sessions, and practical tips.

"The signal-processing workshop was a particular highlight," says Andreas Köstlinger. "The versatile application range and outstanding performance of the DSP600 or the P64 with FIR filters and IRIS-Net in the installation market were clearly demonstrated. When combined with the DSA power amplifiers and their patented Variable Load Drive, completely new possibilities arise."

Based on positive feedback from the participants, Danner concludes, "Every single participant took part with great enthusiasm. It's always a pleasure to welcome customers to our factory, to see how Martin Traut's amp show puts a grin on their faces, and how VariLine's sound quality continually gets even long-time customers really excited."

At the end of the Academy, the participants had another highlight to look forward to. Danner: "At the Gäubodenfest, our local beer festival, everyone got the chance to contemplate past and future projects with a stein of beer, some Bavarian specialties, and the sound of Cobra-4."

More Than London

Leaving the bright lights of the capital, off to Salford Quays. KEVIN HILTON finds out who's making the move, and why.

London has long been the place where people reinvent themselves and make a new life or career. It sense; it's the capital of England, UK seat of government, and the centre of finance and banking (something that is probably played down right now) and the focus for the media and creative arts.

This has caused resentment over the years from people who are in what was dismissively and patronisingly known by Londoners as the provinces. "Life still goes on outside London!" they would protest.

Now the UK is being told London is no longer the centre of all things media, and not really liking it. With the move of several major BBC production and technical departments to MediaCityUK (MCUK) at Salford Quays now complete or close to completion, the arguments continue about shifting programmes like BBC Breakfast and most of the Radio 5 Live operation up to Greater Manchester.

There are many objections to the move – the BBC leasing space at a commercial development is a key one – but it is the personal impact, with reports of staff being given ultimatums to move or leave, that causes most resentment.

Putting aside whether MCUK is a good idea or a high price folly, there is the implication behind all the discussion and understandable resistance that Manchester – and Salford – is still a provincial city that has no right thinking it can be a major British broadcasting and media centre.

History says this is wrong. It has been an important production base for the BBC over the years, but perhaps more significant is Manchester being home to Granada Television, which broadcast to northwest England from 1955 and contributed to the UK-wide ITV (commercial independent television) network such as *Coronation Street*, *Brideshead Revisited,* and *World in Action*.

Since the merger of Granada and Carlton, the franchise holder for London and the southeast, ITV in England has been a more homogenised proposition, with less regional character on the network. Regardless of that, the spirit of Granada continues in the region. The broadcaster is also to join the BBC at MCUK, on the upper floors , already occupied by the University of Salford's media department.

ITV/Granada's ongoing requirements and the increased BBC presence in the region, together with the proliferation of independent production companies, has created a potentially large and lucrative market for local post-production facilities. In anticipation of this many post houses are expanding and new ones opening.

Among the newcomers is 80 Hertz, based at The Sharp Project development just to the north of Manchester city centre. The Sharp Project was conceived by Manchester City Council as a "digital content production complex". The huge former warehouse, once used by Sharp, has been converted into spaces for TV and film production.

George Atkins, 80 Hertz's owner, was the first to sign a lease at The Sharp Project and built a recording studio with a large orchestral room and a post suite, equipped with Pro Tools XHD and Avid (Digidesign) C24 console. Although from a music background, Atkins wanted to have a post element to the studios and is looking to build "some synergy" with MCUK.

Another new facility is set to open during April. VTR North is already well established in Leeds but the owners have decided to cross the Pennines to exploit what they see as a larger market in Manchester for both TV commercials and broadcast work. VTR Manchester is being built into 3,000 square feet in the city centre; on the audio side it will have a 5.1 studio with voice-over booth, designed by Studio Schemes, equipped with an Avid ICON D-Command console, Pro Tools HDX, Neumann microphones, SSL pre-amps, and Genelec loudspeaker monitors.

Flix is also based in the centre of Manchester, where it has been for 20 years. It is a preferred supplier to the BBC, which, says Managing Director Leo Casserly, has pushed its existing facilities to full capacity. To deal with this the company has built a new dubbing suite at its Invicta House headquarters. This features the most recent version of the Avid Artist console and Pro Tools version 10. The company has also taken space at MCUK, building CGI graphics and finishing suites at The Greenhouse.

Among the longest established post-production businesses in Manchester is Sumners, founded by two former Granada employees. It is based in the city centre but recently word began to leak out that the company was to open a facility at MCUK, where it is already involved in running the Pie Factory film and TV sound stages. Details on what Sumners will be doing there are sketchy but the company did confirm it was installing a Euphonix desk into the University of Salford building.

With the closure of Twickenham Film Studios and doubt over the future of BBC Television Centre in London, there does seem to be a shift in the balance of broadcast and media production power in the UK. The level of resources and number of people based in London mean the city could never become a backwater, but the fact the shift has happened so quickly could be a cause for concern. There was always too much attention focused on the capital but going entirely in the other direction now would not be a good thing either.

The best.

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A little while ago, JERRY IBBOTSON called off his love affair with Roland. But could the R-26 be enough to rekindle the flames?

I've had a bit of a love-hate relationship with Roland/Edirol recorders in the past (the Edirol name is one that Roland has used to sell its portable recorders previously). I've owned an R-44 four-channel recorder for about five years and swear by it. It is a 'proper' location recorder. But I had a brief and unhappy fling with an original R-1 portable recorder back in 2005 that saw me return it whence it came.

I've now been playing with an R-26. It's dropped the Edirol name in favour of Roland, and sits between the R-44 and the old R-1 in terms of size and cost. It's a good-looking beast, with the front/top surface (depending which way up you hold it) dominated by the grey-scale LCD screen and two recording level dials. Below these are soft-touch buttons for main functions (Record, Stop, etc…) and at the top of the machine are four microphone capsules.

ROLAND R-26

Digital Hand-Held Recorder

Four? Yup. The R-26 has four inbuilt microphones: an X/Y stereo pair and a separate pair of omnidirectional mics. There are also two XLR/quarter-inch combined inputs in the base for use with external microphones and line sources. And… yes, there's more… there is also a mini-jack input on the side for use with yet another mic.

No surprise then, that it can do multi-channel recording: up to six-channels using a combination of different inputs. For example you can set it to use the XY mic, the plug-in mic (the stereo mini-jack) and the analogue inputs (the XLRs). If you are using it in one of the six-channel modes then the record levels are set by a combination of the input dials and the touch screen. With my example the XY level is set on the left dial, the analogue on the right, and the plug-in via a slider on the touchscreen.

There are a couple of niggles there, such as the locking together of sources onto one record setting and having to use the screen. But if you view this as a recorder that can do six-channel as well as lots of other 'stuff' it's less of an issue. If you were doing multi-channel recording all the time, you might buy a dedicated machine at a far higher price than the R-26.

Stuff It To The Hilt

There is actually an obscene amount of 'stuff' the R-26 can do. You can adjust the sensitivity of the inputs, separate to the gain (this is done before the signal if A/D converted). You can adjust the directionality of the XY mics. If using the XLR inputs, you can set them to take an M/S input and adjust the width. If using both sets of inbuilt mics you can adjust the balance of the two. You can record in a range of file types and quality settings, up to 96kHz 24-bit .wavs. There's phantom power, a limiter, full playback control (you can solo each channel), a high-pass filter (switchable), and an awful lot more.

It can even act as a USB audio I/O device (sound card in old money) when you hook it up to either a Mac or PC – the drivers install themselves from the SD card that comes with the machine. I've used other portable recorders that can be used as a USB microphone but the Roland lets you channel audio from its external inputs into your computer, at the sample rate set on the R-26. You can even play audio from your laptop back through the R-26's headphones or small monitor speaker.

From The Inside Out

I've got this far without mentioning either build or audio quality; such is the strength of this wee beast's feature-set. The build is excellent: it's made of a mixture of high-quality plastic and metal (just like the R-44). There's something of the Marantz about it (I mean that as a compliment) and it reminds me in places of the classic Sony Walkman Professional from the last century.

The buttons on the front/top are rubberised and the touch screen is excellent. It uses icons and images to guide you round, as well as tabbed sections to show you where features are kept. I had the machine up and running, in the mode I wanted, in under two minutes flat. Oh… and there was no handling noise – my pet hate.

Sound quality is equally excellent. I took the R-26 into the centre of York and recorded some busy crowd atmos on the X/Y and then the Omni mics at 96kHz, 24-bit. The quality is excellent, with no hiss or extraneous noise. I'm actually looking forward to seeing what else the Roland can do in the future. My next task for it is to record some long interviews, using my Rode NTG shotgun in one of the XLRs. I normally use the R-44 for this kind of task but the R-26 is smaller, lighter and sounds at least as good.

Coming Up Roses

This machine is phenomenal. I've seen it online for £ 350, which is astonishing considering what it can do. To me it straddles two camps: portable recorders (like my beloved Olympus LS-5) and location machines (like the R-4 Pro). It can be used in grab-it-and-hit-record stylee to get fx audio on the move, but then can be set-down and hooked up to different mics for a more considered, fixed-position recording. With that price in my mind, I'd say the bar has been raised. The love-affair is back on.

INFORMATION

£ **GB£340.83 (exc.VAT)**

Ⓐ **Roland UK, Atlantic Close, Swansea, SA7 9FJ**
Ⓣ **+44 (0) 1792 702701**
Ⓦ **www.rolandsystemsgroup.co.uk**

THE REVIEWER

JERRY IBBOTSON runs Media Mill, a York-based audio production company started in 2000 that specialises in sound for video games. Prior to this, Jerry was a BBC journalist for ten years, ending his spell with the Beeb as a reporter and newsreader at Radio One Newsbeat.

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Great results through efficient means, SIMON TILLBROOK summarises Eventide's latest plug-in releases.

EVENTIDE OMNIPRESSOR & 2016

Dynamics Processor & Reverb Plug-ins

Eventide has been producing emulations of its well-respected hardware products for some years, and the company has now created new plug-in emulations in AU, VST, and for Pro Tools 10 users, AAX formats.

The first offerings are in the form of the Eventide Omnipressor and 2016 Reverb.

Omnipressor

Introduced in 1971 and continuing production through to 1984, the Eventide Omnipressor found a great many fans due its extreme processing capabilities.

The on-screen version of the Eventide Omnipressor is very authentic, as you would expect. This unit is described as a dynamic modifier as it is capable of compression, gating, expansion, and dynamic reversal processing.

Controls on the Eventide Omnipressor panel start with input calibration buttons that act as input level pad switches. You can then set your threshold with the rotary interface variable from -50dB to odB. Attack time is variable from .1ms to 100ms, and release from 1ms to 1sec.

There are two buttons on the Eventide Omnipressor that determine the frequency response of the level detection. These are labelled 'Bass', and you can select 'Norm' to match the frequency response to the gain controls, or set to 'Cut' to reduce low frequency signals and subsequently their effect on the overall sonic results.

The centrally mounted meter display on the Omnipressor can show Input, Output, or Relative Gain levels in dBFS.

The Function selector runs through the full range of dynamic control possibilities offered by the Eventide Omnipressor.

Starting from a fully anti-clockwise position, the Eventide Omnipressor acts as a gate/expander. As the threshold level is exceeded the gain level varies very sharply from full attenuation to full output gain. As you turn the control clockwise, this variation from full attenuation to full output evens out until you reach the mid point and unity gain. Rotating further clockwise you now introduce compression, with an increased ratio as you go further clockwise. Once you pass the three-o/clock position you introduce the dynamic reversal. High level signals produce a lower level output and low level signal a higher level output proportional to one another.

There are two LED-style indicators on the Eventide Omnipressor to let you know what is happening with the

THE REVIEWER

SIMON TILLBROOK is a UK-based recording engineer and mixer with an extensive freelance history both in the UK and in the US - much of that from the Nashville recording scene.

gain structure. The green LED indicates attenuation, and the red LED an increase in gain. The intensity of illumination varies accordingly.

The last two rotary controls, 'Atten Limit' and 'Gain Limit', set the maximum levels of attenuation and gain increase from 30dB to 1dB, and override the action of the Function control.

2016 Reverb

The Eventide 2016 Reverb plug-in relates to one of Eventides coveted mid 80's designs. A smooth reverb found in many of the worlds top facilities.

The Eventide 2016 is presented in a simple and clear fashion. The level display on the left makes up a part of the Eventide 2016 input section which also includes an input level control and a wet/dry balance rotary control.

There is also a button here labelled 'Kill' that cuts the input to the Eventide 2016 so you can isolate the tail of a reverb signal you have generated.

The middle section of the Eventide 2016 controls the reverb parameters offered using rotary indicators.

You can adjust predelay, decay (RT60), diffusion, and what will be of particular interest, position. Position allows you to alter the listening perspective from front, or close, to rear/distant.

The final section of the Eventide 2016 Reverb is an EQ section containing high and low EQ sections to modify the frequency make-up of your reverb. The high EQ gives you 8dB of attenuation only, with selectable frequency from 1KHz to 8kHz in 500Hz steps. The low EQ has a gain control that runs from -8dB through to +4dB in 1dB increments, and a frequency selection from 50Hz to 500Hz in 50Hz steps.

In Use

The Eventide Omnipressor has never been about subtlety, it makes its presence felt wherever you apply it, and Eventide has managed to transfer all of this character into the Omnipressor plug-in.

This is the first AAX plug-in I have used with Pro Tools 10 and both sonically, and in terms of system efficiency all worked exceptionally well.

I love the destructive qualities of the Eventide Omnipressor. For a real edge to a signal or for extra texture, with parallel compression for example, there is nothing that quite has the same edgy character.

The Eventide Omnipressor, being a double knee processor, takes time and a lot of thought to get great results with, but great results it is capable of and well worth the time investment.

The Eventide 2016 Reverb is a very natural smooth sounding reverb that comes with a whole host of very usable presets to illustrate this. Controls are simple and clear, and I do like the illuminated level indicators on the rotary controls, a good quick clear point of reference. The Position control is also very nice, and there is quite a lot going on. It's not simply a glorified wet/dry balance control as the qualities of the reverb and its artifacts alter in a very natural and convincing way.

It is very hard to put your finger on why the reverb works so well. Sounds are fabulous and the reverbs balance and sit within your mixes so easily.

Looking at the system usage within the DAW, the Eventide 2016 once again is a very efficient plug-in with great results.

Conclusion

The Eventide Omnipressor and 2016 Reverb are every bit as good as I hoped they would be. Sonically they both deliver exception results with efficient use of system resources. The Omnipressor can add real bite in a very unique way, and the Eventide 2016 delivers smooth, wonderful sounding spaces with a very useful position manipulator.

The Eventide Omnipressor and 2016 are very attractively priced, so no difficult justification battle to have with your conscience. AM

INFORMATION

£ Omnipressor Native: GB£79.00 (inc. VAT)
Stereo Room 2016: GB£119.00 (inc.VAT) – (introductory prices)
Ⓐ Eventide
Ⓦ www.eventide.com

Ⓐ UK Distributor: Source Distribution, Unit 6, Pembroke Buildings, Cumberland Park Business Estate, London, NW10 6RE
Ⓣ +44 (0) 208 962 5080
Ⓦ www.sourcedistribution.co.uk

Cutting-price doesn't always mean cost-cutting, as SIMON TILLBROOK discovers with sE's worthy project mic.

SE X1

Project Studio Microphone

SE Electronics has built itself a solid reputation over the last decade by producing quality microphones at very attractive prices.

sE has never been the cheapest, that's not what it's about, but provides a very high quality product manufactured at its own plant in China with good quality control.

sE Electronics has also produced some very nice higher end microphones utilising valve, and in collaboration with audio design guru Rupert Neve, rather nice ribbon microphone and high-end transformer-based offerings.

sE Electronics has drawn upon all this design and manufacturing experience to offer up something for those who want to achieve excellent vocal recording results on a very tight budget indeed, and so come up with the sE Electronics X1. But will this be a welcome addition to such a well-respected range of microphones?

Overview

The sE Electronics X1 is a hand-built large diaphragm condenser microphone sporting a fixed cardioid polar pattern.

This is an FET condenser that is presented in a rubberised matt black finish that is consistent through the body and steel grill around the capsule.

On the body of the sE Electronics X1, we find switches for a -10dB pad and HPF, not something we see very often on microphones in this budget range.

Looking through the specifications of the sE Electronics X1, and more specifically the frequency response trace, it would appear that the microphone has a little bit of a lift starting from about 3kHz, and becoming most pronounced at between 10 and 15kHz.

The sE Electronics X1 comes in a card box with a simple microphone clip. I have an sE Electronics 4400a, and the suspension cradle fitted the X1 – although it should be noted that this universal cradle is available to X1 owners for GB£39 (inc.VAT), quite possibly a worthwhile investment given the flexibility it allows when instrument miking.

sE Electronics offers the X1 as part of a package that includes the sE Refection Filter for a very attractive price indeed to give you an instant vocal arrangement.

I have my own sE Reflection Filter, so tested the X1 in this arrangement.

Use

When you open the box containing the sE Electronics X1, you really do not feel that you are dealing with a low cost unit, and this continues when you lift the X1 out of the box to get a closer look.

The build quality is everything others and I have come to expect from sE Electronics, so no obvious feel or visual indication of cost compromise.

Both the pad and the HPF switch felt solid and up to the task, and the clip attaches the sE Electronics X1 solidly to the microphone stand.

Doing some initial basic tests, the sE Electronics X1 has a pretty tight cardioid pattern. There is a good amount of side rejection as it stands, and very low inherent noise. I tried the sE Electronics X1 with the sE Reflection Filter in place on a wide range of male and female vocal performances (both spoken and sung) over a few weeks using quite an array of pre-amplifiers and general system set-ups reflective of both home and professional studio environments.

The sE X1 delivers solid mids and lows. There was real depth with all the variety thrown at it, and I can confirm that high end lift seen on the spec sheet.

We get a bit of a bite with an airy feel to the overall sound. As a microphone designed primarily for use in this way, I can see that this would be a character that the vast majority would approve of. The effect of this lift is slight and controlled, so where some modification is required, this is simply dealt with when you employ a simple equaliser.

The sE Electronics X1 coped with all the vocal sources I put in front of it extremely well. It showed itself to be a very good microphone for general vocal use and, if you go for the kit with the sE Refection Filter, you get a little more control to really bring out that upper mid presence.

Moving away from vocals and looking at the sE Electronics X1 in a wider general-purpose sense, how would it stand up?

I tried the microphone on acoustic guitar and a cross-section of percussion in various positions, and found that the sE X1 consistently delivered bright crisp results. The sE Electronics X1 would be a good all round workhorse of a microphone for those looking to achieve good results on a tight budget.

Conclusion

When you take the price of the sE Electronics X1 into account, the results that can be achieved are exceptionally good. The sE Electronics X1 stands out for its solid feel and crisp, airy sonic results.

Once again, sE Electronics has delivered what it promised, and the sE X1 is a very worthy addition to this well respected product range.

INFORMATION

£ **GB£139.00 (inc.VAT)**

Ⓐ **sE Electronics/Sonic Distribution, 3 Hunting Gate, Hitchin, Herts, SG4 0TJ**
Ⓣ **+44 (0) 845 500 2500**
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THE REVIEWER

SIMON TILLBROOK is a UK-based recording engineer and mixer with an extensive freelance history both in the UK and in the US – much of that from the Nashville recording scene.

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INSIDE MEN

Hackenbacker repeatedly proves that TV sound doesn't have to be ordinary, and that record continues with its latest project. PAUL MAC talks to Nigel Heath about thinking outside the box for *Inside Men*.

Hackenbacker's Nigel Heath describes *Inside Men* as a "very human story," which is born out by the many positive comments and reviews that the series has attracted. On the face of it, it's a four-part TV series about a group of men who conspire to commit an armed robbery at the counting house where they work. Underneath this is the story of ordinary people who turn to extraordinary actions – and their own unique routes to that point.

To complement this, in sound the first three episodes take a very naturalistic run up to the fourth, which was something of a creative departure, using binaural techniques to convey point of view.

Starting with the approach to the first three episodes, Heath recalls: "You don't want to frighten the horses, and you have to engage. This is just a beautifully acted, directed, written piece of drama. We didn't need to throw fireworks at it... We intended this to be a very natural-sounding programme where you could engage with the actors and the direction and the smart editing."

Heath and his Second Engineer, Alex Fielding, agreed that this project was like making the best omelette – just a few ingredients, cooked with care. Heath: "Sometimes simple can be really hard to do well."

Alternative POV

The last episode is the main story essentially re-told again from the protagonist's point of view. So, to make it more than just a repeat performance, Heath, James Kent (Director), and Colin Wratten (Producer) agreed on an audio strategy to complement it. The first stage was binaural ADR. "We had the actors do the ADR into a Neumann dummy head," explains Heath. "When the stuff was replayed into the programme, it would appear to be a little bit unusual, and hopefully put the listener and the viewer in the position of being the protagonist you're seeing on screen... You're seeing the camera angles that relate to that point of view – their eye-lines essentially, with breaths and movements and so on." The ADR Recordist at Hackenbacker was Oliver Brierley.

But it wasn't enough just to get the dialogue point of view right. They took pains to get the whole mix into perspective: "We took the premixes that surrounded those scenes... and ran them through our large stereo rig in Studio 1 here [Hackenbacker], with the Neumann mic on the end of a boom. I acted the movements with my arms of what the camera moves were doing on screen, and then we chopped those re-recorded mixes back into the stems, so when the two elements were together you're also then hearing a binaural-ish reproduction of the Foley premix, atmos premix, and effects that go alongside those moments. In the last 20 minutes of the show that was used quite a bit. In the early part of the show we were dabbling with playing sounds that you wouldn't normally hear, or not playing sounds that you would expect to hear, just to give the audience a clue that this is no ordinary telling of the story."

Heath has a track record of employing over-arching audio devices and master-strokes of listener psychology to enhance an experience. In this case, it was subtle, but satisfyingly devious: "We used physical things – tiny little moments to focus the audience, as a guide that you're going to be listening on a different plane than you have before. Maybe cigarettes being compressed between fingers in shots where you wouldn't normally use that technique – not huge, hyper-close-ups. So with a subtle use of sound, you get the audience engaged with the sonic... basically to sit up and listen without a caption coming up to tell you to do so. A little bit of mind control – audio Derren Brown."

Image Credit: BBC / Jules Heath

Image Credit: BBC / Des Willie.

TV has always been shy of audio ambition above the basics of mono compatibility, and for valid reasons. Now though, surround outputs, new delivery mediums, the big-telly phenomenon, and more have matured a significant proportion of viewing facilities. Of course, Heath had to make sure that everything else was catered for and that *Inside Men* didn't lose sight of the audience. "Those scenes [first person, binaural) shouldn't live and die on the fact that the audience is sitting in a sweet spot and listening in stereo, it should still sound cool when they're listening on a laptop, in iPlayer, in a non-ideal seating position in the room. It can't depend on them being square on to the TV, but if you are you get a great listening experience, and if you're not it still sounds cool. It sounds great in mono, in stereo, Prologic... I checked my levels where we intercut between hard mono breathing and ADR, and where we didn't cut into binaural, and I was sure to check my levels – that we didn't dip down when we went to binaural."

Extraordinary Permissions

Heath comments that the inspiration for the approach to *Inside Men* was pure – it was down to the picture and what Director James Kent had managed to capture on-set: "It's a formidably acted programme, it doesn't need a lot of whizzes and bangs. It's just a way of bringing another subtle element to the programme. James Kent was really open to this and wanted his programme to sound as interesting and as engaging for the audience as possible. It was really refreshing to work with a director who was open to this stuff and didn't raise objections to us sticking a dummy head mic in front of his actors. He encouraged them to work it. James understood how this would add an element to the programme; he found out from us the best way to work the actors around the mic, and the results were really impressive.

"I've also got to say thank you to Colin Wratten, the Producer, who didn't query it when I said we needed to try this as an experiment. It's really cool to have supportive directors and producers when you're trying to make something exciting, and the first questions isn't, 'how much is it going to cost?', but, 'this is going to be brilliant, what do we need to do?'. And that really is exciting and refreshing for me."

"It's really cool to have supportive directors and producers when you're trying to make something exciting, and the first questions isn't, 'how much is it going to cost?', but, 'this is going to be brilliant, what do we need to do?'."

Given that the ADR played such a significant creative role in the fourth episode, it should still be noted that much of the production sound got through, and Heath cites this in particular as one of the reasons the post on *Inside Men* went so smoothly. "To get the most out of this story," says Heath, "The audience has to really engage with the characters, which is why, when you have some really tender scenes played between the couples, we added nothing, just really good rushes sounds..."

"The programme is set in a money counting factory, so there was plenty of machine noise that we could pan around and move with the cameras, so when the camera's tracking past loads of counting machines we're able to pan the various elements of the rushes sound, which was a delight. The Sound Recordist – Alistair Crocker – caught some really cool natural sound effects from the set and from the factory, which we integrated with the sound effects... You can't really hear where the real stuff starts or ends. Which is great, it feels as if you're there."

Site Unseen

For Alistair Crocker himself, Inside men was a relatively long nine week shoot with a complex timetable around various locations, including noisy office and sorting room sets, and a real (but disused) bank vault. "When I first read the script," he notes, "I was able to say to Colin Wratten that our work would fall halfway between trying to get the dialogue, and the fact that they would need a huge amount of sound effects in it – machines counting and rattling along, and all sorts of interesting things as well, which we would try and do synchronously with the picture, which we in fact did. It worked out very well, so when they were doing montages of machinery and things, all the correct sound effects were available, and I think probably made it a bit more exciting and vivid."

Alistair Crocker.

Capturing good dialogue on location is always the priority for production sound, and always a challenge. *Inside Men* was no exception. Crocker: "I didn't know what the shooting ratio was on it, but it'd be quite a lot, and most dialogue scenes on it were covered with two cameras, which is very often quite awkward for us, but at least the headroom was about the same. If you do wide and close together, it means that any overhead boom gets pushed right out, and it might work for the wide but it won't be any good for the close-up. So you have to avoid that with your cameras, but by using two you do introduce a lot of other problems like camera noise, even though we're using the new Arri Alexa camera there's a certain amount of noise comes off that, and the fact that your boom shadow, say off your A camera, might fall into B camera's path, so it's never as easy as it seems.

"Also, a lot of it was in offices with glass walls, which though it looks very simple when you see it on the screen, that means that for instance mic booms are going to be in shot, so there are an awful lot of mics hidden in the desks, and coming up from the floor, and bits that you can't see to avoid the glass reflections, and to a certain degree, the artists were on personal radio mics as well.

"...We survived, and everybody was very pleased with the results, which is the main thing."

Nigel Heath also makes the point that even when it comes to ADR, good production dialogue can be very important. "It's interesting," he says. "When you have to go back into shows and do post sound and ADR, it's a lot more successful if the sound you're matching is good. You get some rushes where the sound is so curious and has such weird artefacts on it, that to record ADR and successfully integrate it, is really difficult... But to have a really solid original to work with, it's a joy, and actors are coming back to maybe tweak a performance rather than re-doing it."

The initial run of *Inside Men* will be finished by the time you read this, but it's likely to find additional air-time in the future, and is also available via the BBC iPlayer.

Smart AV Tango 2

eMerging, Smart AV's distributor, might have a job on its hands. STEPHEN BENNETT doesn't want to give the Tango 2 back after a too-brief trial period.

THE SMART AV TANGO 2 Digital Audio Workstation controller is a significant hardware upgrade from the original Tango that was itself a spin-off from the original SmartAV AV console. The original Console introduced some innovative design features that have bled into the development of the Tango, but at a lower price point and with a smaller physical footprint. The Tango 1 (as we can now call it) was covered in the July 2008 issue of Audio Media, and it's worth checking the article out as it outlines the underlying technology that SmartAV has built into the Tango 2 in more detail.

Getting Physical

At first glance the Tango 2 has changed little physically from its predecessor. The 22-inch 16:9 touch-screen still dominates the centre console and is housed in an extremely sturdy and well-built sloping surface above a bank of eight touch-sensitive faders. I've noticed that the first thing anyone does when encountering any kind of console is to fiddle with the faders, and their feel is often an important part of how people judge the quality of the device, so I'm happy to report that the Tango 2's long throw faders feed sturdy and precise and quiet in operation.

Above each of these faders is another programmable encoder along with mute, solo, and SmartAV's unique 'Inject' buttons. The latter work in conjunction with the console's ARC technology to assign various desired parameters to the selected channel, and there's also a handy lock function so certain encoders can be fixed into performing certain tasks. The 16 notched touch sensitive encoders to the right of the screen are automatically assigned to various parameters when an on-screen control is touched – though these encoder assignments can also be programmed in any other way the user wishes.

The touchscreen itself extends each channel's controls and display upwards depending on what's been selected, and parameters such as panning can be manipulated easily by selecting on the touch screen and twiddling the associated encoder. The left hand side of the Tango 2 hosts the 'expert panel' controllers that deal with grouping and 'ergonomic spreads,' which are fader channel assignment layouts – useful if you don't want your eight faders to display consecutive channels.

Across the top of the screen is where the 'soft' version of the original Console's ARC is located, called the MonARC here, which allows you to display up to 100 channels in compact mode. Eight are highlighted at any one time and you bring these channels into focus by dragging the group along the top of the screen. It's a simple and intuitive way to place the desired channels to be controlled by the eight faders and main screen. Channel parameters can easily be copied and injected into a new channel with a few button pushes, and a row of soft menu buttons can be assigned to display a virtual keyboard along with other functions.

Dedicated (but reconfigurable) transport controls lie above the mouse pad, and the Tango 2 now sports a pull out shelf where you can just slip a modern narrow Mac or PC keyboard and this, along with the mouse pad and DVI input, means you may never have to leave the comfort of the Tango 2 when working. This latter feature could potentially be really useful, as many engineers turn off the screen when mixing to avoid being distracted by visual information and I found that being able to easily swap between the Tango 2 channel view and the DAW was an extremely nice way to work.

Other new hardware features include OLED readouts on all the programmable buttons, which means that it's now much easier to see what functions are assigned to which control. The buttons themselves are improved and those that replace the rounded type found on the version 1 Tango are definitely nicer in use. Because of the position that I had to have the Tango 2 in during the review period (it was next to a pretty hefty analogue console), I was getting light reflections off the screen due to the shallow display angle. I don't think I'd have this problem in a more traditional installation, but I did keep wanting to raise the angle of the screen as I can on my Mini Moog – it would ▸

THE REVIEWER

STEPHEN BENNETT has been involved in music production for over 25 years. Now based in Norwich he splits his time between writing books and articles on music technology, running his own Chaos studios and working in the Electroacoustic Studios in the School of Music at the University of East Anglia. He's also a filmmaker with several music videos and short films to his credit. www.stephenjamesbennett.co.uk

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be extremely handy now that the console has a DVI input and the user is likely to want to display their DAW on the Tango 2 screen.

On the back panel, apart from the power connectors DVI and the Ethernet port, Tango 2 has six programmable GPIO (General Purpose Input Output) sockets that can be used for sequencer start/stop, punching in, and so on. The look and feel of the touchscreen display can be changed on the Tango 2 to suit the user and this, and other software related features, will also be available to Tango 1 owners with the latest update – though, of course, any changes that relate to the new hardware changes in Tango 2 won't work on the legacy device. Such is the relentless march of technology – though SmartAV is apparently looking at ways in which users of the older consoles can upgrade to the latest Tango.

Most of the hardware improvements have come about from suggestions by existing customers, and one of my favourites is the improved jog/shuttle wheel. This, along with the chunky transport and other buttons, and nicely balanced long throw faders, make the Tango 2 a pleasure to use.

Up And Running

Tango 2 connects with the host computer via a standard CAT 5 Ethernet cable and needs a separate wall wart power supply (albeit with a robust multi-pin connector) to bring it to life. Configuration of connection settings was pretty easy for this network-savvy guy, but Smart's excellent technical team are only a phone call a way if you have any issues. Once connected, you simply run the supplied Netsmart program, which loads the drivers for the selected DAWs onto your computer and then use the DAW's own control surface set-up window to make sure connections are tikkety-boo. Set-ups for the supported DAWs are covered in detail in the supplied documentation and swapping between DAWs is just a matter of a couple of key presses on the Tango 2. In the educational environment I work in this is a godsend; in a busy broadcast or studio facility it simply saves time and thus money. DAWs directly supported to date are Steinberg's Nuendo and Cubase, Pyramix, Apple's Logic Pro and Final Cut Pro, Vegas Pro, Digital Performer 7, and Pro-Tools – though Avid's flagship is controlled via a HUI emulation only.

In Use

Once connected to my Mac Pro, I found the Tango 2 to be pretty intuitive in use with recourse to the manual only being needed to remind myself of the more unusual features such as the Ergonomic spread and Inject buttons. I'm familiar with the ARC system from the original AV and Tango 1, but I'm still left almost breathless by the ease of which you can sweep through banks of eight channels at a time by simply swiping your hand across the top of the screen and present those selected right in front of you on the faders and

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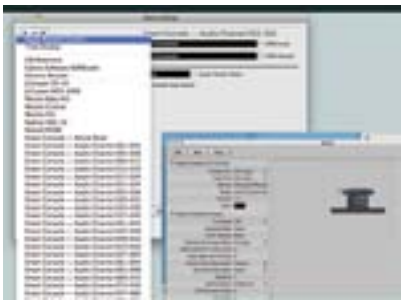
display. SmartAV produces a 12-channel expander for those who need more physical channels, but the MonARC system almost makes it redundant as you can easily see at a glance which of the channels you have under your fingertips. These 'mini' channel displays in the MonArc section also provide information of the channels you are using in your DAW such as mute, solo, channel name, level, and many other parameters. Each of the displayed channels also sports a level meter so the MonArc is, in effect, also a virtual meter bridge.

Like any controller, it takes a while to become familiar as to out how it responds to the idiosyncrasies of your chosen DAW. But because features such as the display of plug-in parameters, EQ, and compression (both with a useful visual display) are the same across DAWs, it actually makes swapping between them easier than just using a computer. Touching a fader on the Tango 2 selects that channel and makes the parameters for plug-ins, compressor, EQ, inserts, and I/O visible in the active display and adjustable via the rotary encoders on the right of the console and those on the active control section just under the screen.

The graphics are excellent and everything is presented clearly, though it can take time to get your head around which encoders control what – but this comes easily with familiarity.

The plethora of programmable buttons mean that you can work in the way you want – I set these up to control most of the Logic Pro and Nuendo features that I'd normally adjust with key commands, and found that I actually didn't need to drop the Mac's keyboard onto the Tango 2's pull out tray – but having the mouse handy was really useful when swapping the DVI input to the DAW display. The mouse pad itself confused a few people who saw the Tango 2, as it appears for all the world like a multi-touch trackpad – if it were, it would be extremely useful in conjunction with the DVI input when the DAW is displayed on the Tango 2 touch screen, especially as DAWs are not designed to be used with your fingers in mind. Having just the Tango 2 in between your monitors with the ability to display both the console screen and the DAW on the same screen means that you could potentially lose your DAW monitor screen – which would be brilliant for location work, but also would help reduce the diffraction and reflection problems you can have when you have a big screen sitting between you and the speakers.



(Fig.1). Adding the controller information to Logic Pro and Nuendo.

Conclusion

As more high end users in the post and film world move into the box, the use of a DAW controller such as the Tango 2 is becoming an essential addition to the studio. The combination of instant recall and ergonomic loveliness that the Tango 2 presents to the engineer really makes working with a computer (almost) a pleasant experience. For the commercial recording studio, be it project or high end, having something as impressive and imposing as the Tango 2 sitting in the centre of your control room could mean the difference between getting the gig or not – never mind the fact that the thing is actually extremely useful in day to day workflow.

eMerging (SmartAV's UK distributor) is going to have to prise this thing out of my hands – going back to my 'other' DAW controller is going to be like getting back in a Nissan Micra after a week with a Ferrari. The Tango 2 is that good. It'd be nice in red too.

INFORMATION

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Ⓦ www.smartav.net

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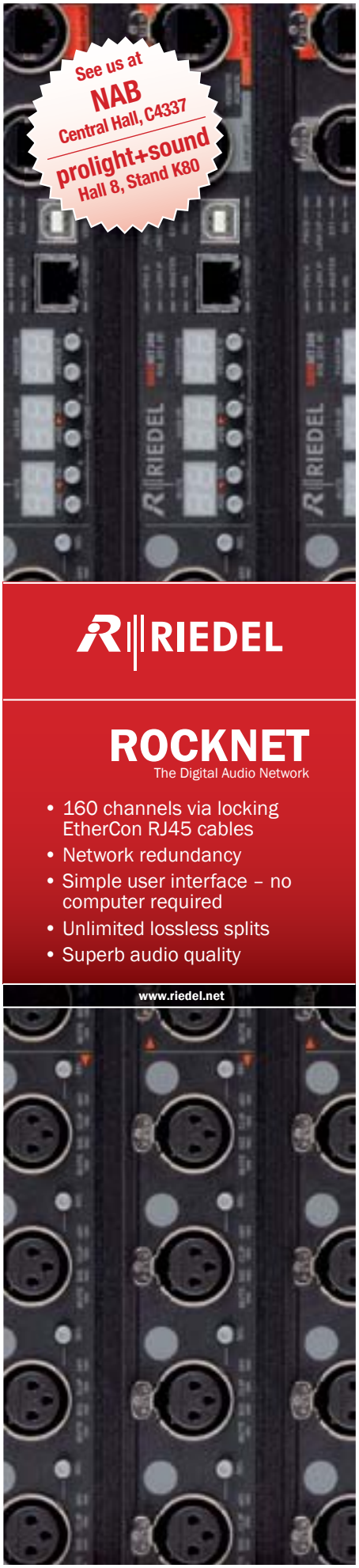

Behind The Curtain

The Modern Face of Regional Theatre

Photo Credit: Robert Day

You might think that English theatre is all about big-budget West End musicals, with maybe the odd edgy performance in a hip London venue. But there is a thriving regional theatre scene, with new and exciting work being produced all the time. JO FLETCHER-CROSS talks to those behind the scenes around the country.

England has a history of producing strong regional theatre. There are around 50 producing houses in England, plus receiving houses; there are a lot of touring companies of varying sizes, and this all adds up to a large number of people employed within the theatre industry. It is no secret that a lot of attention and funding goes to London theatre – for instance, out of the approximately £325 million distributed by Arts Council England, £168 million goes to London.

Given that the founding vision of JM Keynes for the Arts Council was 'to decentralise and disperse the dramatic and musical and artistic life of this country', one could perhaps assume that this is not happening. Not to mention local authority funding cuts, the knock-on effects of rising unemployment, and the drying up of private sponsorship. Yet, despite all of this, there is still brave and exciting work going on around England.

Good Times

At Royal and Derngate in Northampton, Head of Lighting and Sound Stuart West is upbeat. Royal and Derngate recently underwent a £15 million redevelopment project. Around 350,000 people visit the venue every year, which has a traditional theatre auditorium as well as the large, modern, flexible Derngate auditorium, plus several studio spaces. West heads up the Derngate team.

There are various budgets that apply across the venue West told me. "One that covers our technical department for maintenance and repair, and one that's allocated for the purchase of new equipment or the replacement of retired equipment. So there is a reasonable amount, but that covers technical as a whole – that covers lighting, sound, lamp stocks. So it has to stretch quite far, and often in these lean times we have to make it stretch very far. But then, when we're looking at an in-house produced show then they have a set sound budget that's assigned to the production, so that obviously allows for a bit more play in the choice of equipment." It sounds like the technical budget is far from an afterthought here. "Absolutely. Sound is playing a larger role, and AV as well. With the increase of sound computers being used on shows and a lot of automation where sound's concerned, it plays an increasingly integral role in productions and performances." The management at Royal and Derngate recognise the importance of investing in the department. "I think that's key. In 2007 the organisation invested £100,000 into sound in the building, which is fantastic. It was a significant step forward, but one that was needed."

When asked about the challenges that face regional theatre, West does not hesitate. "A lot of things come down to money. A West End production has vastly significant budgets compared to what regional theatres are having to work with. But the standard of work that we produce and present is being critiqued all the time by national newspapers, so we have to compete within that market. So it's important for us to invest in equipment, to try and push the boundaries of the shows that we produce and present."

Turning A Pitfall To Advantage

Over at the New Wolsey Theatre in Ipswich, Technical Manager David Sherman discussed the challenges that face venues in more isolated locations. "We're in the middle of nowhere, essentially. So we find it difficult to bring people in to work at the theatre on a full time basis," explained Sherman. Instead of seeing this as a problem, the New Wolsey – like many regional theatres – turns the situation to its advantage. "What we can do is manufacture our own technicians and our own ▸

skills. We constantly take on new casual technicians, who often have just done a few shows at school. We train young people here in the day to day running of things." At the Ipswich venue, they have made this traditional way of learning on the job official, by taking part in an apprenticeship scheme. "We're linked in with the National Skills Academy to try and bring through more people," said Sherman. "It's worked out really well. We've only had one so far, but it's definitely a great thing. We're actively trying to set it up again."

Which is not without its problems; modern apprenticeships are notoriously difficult to administrate, as Sherman agreed: "We did it for one year in 2012, that was with a lot of help setting it up with the county council. After that one year everyone said, right, now you've got to do it by yourself, and I didn't even know where to start. So we've missed a year." Sherman is enthusiastic about the scheme, but not so much about setting it up. "When they (the apprentice) are in the building, it's quite easy – but getting someone here is quite difficult."

Photo Credit: Robert Day

The role of regional theatre in fostering new talent comes up again and again. Amy Spencer, Technical Manager at the Brewhouse Theatre and Arts Centre in Somerset told me: "We are always keen on people interested in technical theatre, and try as much as possible to encourage people to come on work experience and placements and help them go further." Like the New Wolsey, the Brewhouse has also formalised this arrangement to an extent. "We are part of an apprenticeship scheme with Exeter College and currently have a technical apprentice just starting his second year. Our last trainee is now at Bristol Old Vic Theatre School studying Technical Theatre." And at the Bristol Old Vic Theatre itself, they are nurturing a new generation of technicians in the 'old-fashioned' way, as Jason Barnes, the Director of Production and Operations at Bristol Old Vic explained. "Training is important, but invariably in regional theatre that's done on-the-job, unless there is a specific need to learn a new piece of kit. We're always working with new people on the different shows we do, they all bring their own unique talents and experience, so we all learn something from each other.

It isn't just happening in venues – Felix Davies, Production Manager at English Touring Theatre, England's leading touring company, explained its approach. "ETT doesn't have a dedicated training programme, although we are always keen to give young and/or newly qualified people a try in the technical operating department, and to a degree let them learn on the job."

New Structures Of Team Work

Regional theatre obviously provides permanent work, but, importantly, also employs those who work freelance. English Touring Theatre, for example, does not have a dedicated sound department, but hires designers, technicians and operators depending on the requirements of the show. Bristol Old Vic Theatre is in a state of flux as they are in the

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Further new features include an expanded Aux Panel, increased Dynamic functions such as a Duck option and expander for the Gate, a De-esser and two types of Knee for the Compressor. There are also new FX types with multitap, ping pong and stereo delay, with different delay times for left and right. A warmth button is provided on each channel for analogue emulation and two types of EQ have been added (Classic and Precision).

Plus, the SD9 now features Sets (previously only available on SD7T), which has been enhanced to allow for 'Set Spill' allowing the creation of Sets with easy changing of the console layout to display members of that Set.

And if that wasn't enough, to coincide with the Supercharged launch, DiGiCo is offering the Rack-Pack, a 72 mic input system at an introductory total system price.

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Photo Credit: Manuel Halran

middle of a major refurbishment project that has taken the main 500-seat auditorium out of service; however the 180 seat studio theatre is still in operation, and external site specific shows are taking place around the city. The production team currently consists of a Chief Electrician; and freelancers are employed on a show-by-show basis. Amy Spencer at the Brewhouse explained that the technical department is operated with a Technical Manager, Deputy Technical Manager, and a team of multi-skilled technicians, and they use casual technicians for shows that require extra staff. At Northampton's Royal and Derngate, staff are hired in from time to time depending on the needs of a particular show, while at the New Wolsey, the team of five multi-skilled technicians is often supplemented by freelancers, "especially for panto," explained David Sherman. Almost everyone I spoke to stressed that the technical teams were able to apply themselves to more than one discipline.

Stuart West from the Royal and Derngate explained how his team works. "We have a lighting and sound department so basically they are mostly electricians, some with a sound bias. It's my job to organise which members of the team handle sound on any given day. They get a chance to work across disciplines. Obviously everyone has a tendency to have their feet in either one camp or another. It's a great learning ground."

Technological Impacts

Improvements in sound technology are impacting on regional theatres, though in some venues more than others. West is very enthusiastic about the new breed of digital consoles, for instance: "It's had a big impact on how shows are produced, and how shows are toured. Footprints are smaller, taking up less seats, that's more higher price seats in the stalls that can go back on sale, which are generating a larger income for the show and for the organisation."

Jason Barnes at Bristol Old Vic agreed: "Digital desks for us in the long term cut down on the amount of external processing need-

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ed at the mix position, which in turn reduces the footprint of space needed for the mix position – very important in our main theatre as this means we don't have to take up valuable seat positions that could be sold." He is also clear on the importance of keeping up with advancing technologies: "As audiences experience excellent sound quality from going to the cinema, different theatres, even in their own front rooms, we as a theatre need to invest in our equipment to ensure it doesn't fall behind the quality our audiences get elsewhere. However, the sound department can have a bit of a battle, budget wise. The kit tends to be expensive, and making a convincing business case for a bigger budget can be difficult."

At the Brewhouse, Amy Spencer agreed that this is a major stumbling block for many regional theatres wanting to keep pace with technology improvements. "Sound has improved massively within the industry, and technology has helped this – although equipment is still very expensive. We are a theatre with a severe lack of funding, so all budgets are extremely tight." And the encroachment of digital desks into regional theatres has thrown up some other problems, explained David Sherman, back at the New Wolsey. "It's very difficult to have an all-round technical staff that can use digital desks. I think it's becoming more a specialist industry."

Testing, Testing...

So ever-decreasing budgets, a battle between the enhancements of digital technology and the difficulty of maintaining a small team who can do it all, the administrative nightmare of officially training new technicians and an increasingly demanding audience – these are definitely testing times for regional theatre.

On the other hand, everyone seems to relish the challenges that are thrown at them day after day. "It's hugely diverse – the spectrum is vast," said the Royal and Derngate's Stuart West – something that does not faze Amy Spencer at the Brewhouse. "You have to be very adaptable in a regional theatre as every show is different."

David Sherman at the New Wolsey summed up his attitude, which could easily apply to almost everyone I spoke to. "We have something different every week that we are trying to make ourselves – I have an input into the creative side. You can push the boundaries. You can try out different things and develop people and their skills."

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Theatre Technology

Variety Pack

Theatre technology is about more than just consoles and microphones. It's about the control and communications, about performance and play-out, and it's even about the widgets and what-nots. Audio Media has collected just a few select gadgets that might make life a little easier when specifying a show...

Merging Ovation

Ovation is Merging's 'Multi-format media sequencer and play-out system', which takes advantage of the company's MassCore DSP technology to provide an integrated creation and play-out system. Ovation currently supports up to 384 matrixed outputs from an internal digital mixer with up to 256 output busses. Complete scene snapshot recall is where the cue system starts. Every cue supports MIDI, MIDI machine control, MIDI show control, MTC, LTC, RS-422, RS-232, GPIO, script communications, and more.

Additional functions include Interaction Rules, where any cue could, for example, fire another cue, or multiple 'child cues, or pause/dim all cues, and so on. There is also 'locked show mode' for show-time security, hot-key cue lists, and complete integration with Merging's Pyramix for fast editing and creation, where a even a complete multi-channel timeline can be exported to a single cue in Ovation.

Klotz MIS

The Klotz Modular Installation System (MIS) is a must for self-installers who can do without the hassle, bother, and time required for any basic multi-channel install jobs.

This complete no-solder system includes everything from various racking frames and wall-mounted box versions, to individual connector modules, interconnects, and IDC multicore connections.

Interconnection of all modules is via four-channel, 12-pin, push-on SIL connectors, and termination of incoming/outgoing multicore is via four-channel IDC connectors. MP-type I/O connection modules come in various forms, including eight channel XLR, 25-pin D-sub, Harting, RMP, and more.

Additional options include a variety of ready-assembled multi-pin modules, a four-in/3x4 out distribution PCB for signal splitting, and labelling strips.

www.klotz-ais.com

Fohhn LX-10/LX-11

This little speaker made itself know at this year's ISE because of its compact size and hardy build that makes it ideal for the rigours of stage-side, compact touring set-ups, dressing-rooms, control room monitoring, bars, and more.

The unit is part of Fohhn's Linea-LX loudspeaker series and, although compact in size (13x13x12cm), the passive 2-way 4-inch/0.75-inch coaxial loudspeaker has a spec of 50W, 16Ω, 86dB sensitivity, and 100x100° nominal dispersion.

The speaker's weatherproof aluminium housing accommodates a passive crossover and a self-resetting Intelligent Protection Circuit (IPC) to prevent the high frequency driver from overloading.

There are two versions available: the LX-10 for fixed installation (with eight-pole Phoenix connectors) and the LX-11 for mobile applications (with two Speakon connectors). The speakers can be supplied in all standard RAL colours and a comprehensive range of accessories is also available.

For nearfield monitoring applications, the LX-11 can be used with a sturdy retaining bracket and elegantly mounted on either a microphone stand or loudspeaker stand. Locking screws enable the angle of the speaker to be precisely adjusted. For the fixed installation version (LX-10), a wall mounting bracket or diagonal bracket is required.

www.fohhn.com

Roland REAC

Roland Systems Group's REAC is an audio transport protocol for point-to-point transport of up to 40 channels, 24-bit/96 kHz audio with only 0.375mS latency, plus MIDI and remote control data. Standard Cat5e cable is required for connections and REAC can be easily split with standard gigabit Ethernet switches or the Roland S-4000-SP.

One of the strengths of REAC connectivity is the sheer range of peripheral devices that support REAC, and can also provide standards conversions to protocols such as MADI. Roland's Digital snake systems (from the 40-channel modular unit to the eight in / eight out battery- or REAC-powered S-0808), M Series digital mixers, the M48 personal mixers for monitoring, the R1000 48-track recorder, the V-Studio 700 record/edit station, and the REAC PC driver for multitrack DAW recording on Cakewalk's SONAR and more. Additional REAC tools include the S-4000M REAC merge unit (up to four REAC streams per unit), the S-OPT REAC to optical convertor for up to 2km range,

HME DX210

Since HME's acquisition of Clear-Com in 2010, all of HME's Pro-Audio Wireless products are now exclusively distributed by Clear-Com. The company's popular two-channel intercom system has been revisited and revised and is now the HME DX210.

The system offers wireless intercom performance, system compatibility with wired intercom systems, and ►

ease of use. Operating in the 2.4GHz band, the DX210 is now compatible with Clear-Com's or RTS' two-wire systems, and provides two separate two-wire and four-wire interconnections. The 1RU base station supports up to 16 full-duplex and 44 half-duplex beltpacks and/or wireless headsets by linking four base stations. The DX210 is paired with the rugged BP210 beltpack and All-in-One WH210 Wireless Headset COMMUNICATORs, which have two intercom buttons (IC1/IC2) with ISO on the headset itself. The system is also backward compatible with the DX200 COMMUNICATOR models such as BP200, WH200 and WS200 (Wireless Speaker Station).

The system offers two-wire circuit protection to prevent feedback from un-terminated two-wire channels. The DX210 also has an assignable AUX input for program. The DX210 allows for relay (GPO) actuation with ISO function from either base station or any one of the appropriately configured COMMUNICATORs.

As with all DX Series systems, it features Spectrum-Friendly Technology to avoid frequency conflicts and Digital Frequency-Hopping Spread Spectrum (FHSS) technology for interference-free communication.

www.clearcom.com

Radial SW8

The Radial SW8 Auto-Switcher provides redundant back-up by automatically switching between two eight-channel sources such as a pair of digital recorders or playback devices. Even better, the SW8 can detect a machine malfunction and automatically switch to a second backup machine to ensure a seamless performance. All you need to do is record a steady drone on track 1 of the payback system. Connect two synchronised devices and if the tone disappears a red panel LED will light and you can choose to have it trigger an alarm, trip a contact closure, or switch to the second machine.

Designed primarily for live concerts and stage shows where backing tracks are used for orchestration, backing chorals and sound effects, if the tone disappears, the SW8's front panel red LED will illuminate to let you know trouble is at hand and, if you choose, can trigger an alarm, trip a contact closure, or automatically switch to the second machine.

For larger systems, the SW8 can be expanded by linking machines together using a simple quarter-inch instrument cable. Housed in a heavy duty 14-gauge steel 19-inch enclosure, the Radial SW8 is equipped with choice of TRS jack or 25 pin D-Sub inputs (mic or line level operation) and XLR or D-Sub outputs.

www.radialeng.com

Primacoustic TelePad and ShowPad

For the modern cue sheet, control system, message system, even music score, the iOS – whether iPhone, iPod, or iPad – is rapidly becoming commonplace. Amidst all that hi-tech is a need to mount these systems for the convenience of theatre people. What could be more convenient that a mic stand clamp?

Both the TelePad (iPhone, iPod Touch) and the ShowPad (iPad and iPad 2) clamp easily onto a mic stand or similar and allow a wide range of movement of rotation with a sturdy ball-joint.

The custom-contoured ShowPad cradle snugly fits the iPad and is equipped with two spring loaded clasps that make mounting easy. This also makes it quick to remove the iPad between acts and so on.

www.primacoustic.com

QSC Q-Sys

QSC used ISE for its European launch of the new integrated Core Q-Sys Technology for smaller applications. According to QSC, Core 500i and Core 250i "Represent the most powerful and accessible audio networking solution ever developed."

The Core 500i and Core 250i provide advanced centralised processing, routing, and control for smaller venues. They are fully integrated solutions, each with eight card slots on-board. The Core500i is capable of up to 128 network channels while the Core 250i provides up to 64 channels. I/O is selectable via the various Q-Sys I/O cards. Options also include the MTP-64, and MTP-128 multi-track players.

These systems run under a customised Linux operating system on Intel microprocessors and motherboards. IT connectivity is easily implemented utilising Layer 3 Gigabit networking protocols and standard Gigabit Ethernet hardware. The systems are capable of providing failsafe redundancy and custom user control panels are easily created and can be displayed on any Internet-connected PC, iOS device, or QSC's own Touch Screen Controllers (TSC-3, TSC-8). Any incoming signals may be mixed and routed to any output and a large chunk of DSP is provided, including Acoustic Echo Cancellation.

Also new is the I/O-22 analogue I/O box, a compact, standalone unit designed for widely distributed audio sources or destinations such as individual rooms in a multi-room venue. It is powered by PoE or 24 VDC and includes an 8.5 watt mono amplifier and mounting plate for discreet and compact installation.

Riedel Artist

Riedel Artist is designed as a powerful matrix platform for intercom and the distribution of analogue and digital audio and TCP/IP data signals. The system consists of a fibre-based network backbone providing a decentralised infrastructure for live audio and intercom applications.

Artist provides matrix sizes from 8x8 up to 1,024 x 1,024 ports. Multiple matrix frames (nodes) are interconnected by a dual optical fibre ring to form a single large, full summing, non-blocking distributed matrix. The maximum distance between two nodes can be up to 500 m (1650 ft) as standard, and optionally up to 20 km (12 miles). With up to 128 intercom ports per matrix frame, Artist allows a high degree of decentralisation of the entire matrix in a very cost-effective way. As a result the matrix frames can be located near the intercom stations of a specific studio or production facility, saving a considerable amount of wiring and installation costs.

In the latest generation of Artist system, all frames sizes now feature the same type of controller & client cards, so system expansion is easier than ever. Also, it features a doubled CPU clock frequency; increased memory; single, multi-mode, or high-power optical options; newly optimised quiet system cooling; and full compatibility with former Artist systems.

www.riedel.net

CTR Electronics CSC Show Control

Now on version 3, CSC is a complete theatrical/live show control software package for Windows XP/Vista/7. Shows can be designed using cue-list methodology, for sequential events to be triggered, or with pages of hot scenes to instantly recall any state or sound. MIDI control is supported in the form of standard MIDI messages, MIDI Show Control, MIDI Machine Control and customisable strings of System Exclusive commands. MIDI Sequences can be recorded to enable capture of modern digital mixing desk's fader movements, or for live recording of sound effects sequences.

Audio playback can be automated, with an offering of 24 playback devices. Complex sequences of wave files can be mixed and layered using the Live Mixer module, and equipment designed to respond to RS232 Serial commands such as DVD players or video mixers can be controlled from CSC also.

Events can be triggered by remote control button boxes, MIDI commands, TCP/IP network messages, and even be based on the system time clock. Multiple computers can be networked together to track a master and send network chat messages to each other.

Version 3.1 brings a wave display editor to finely adjust wave file start and stop points, add loop points, and so on without needing to jump out to an editor. There's also a timeline-based editor similar to traditional sequencers to visually edit a cue, and 'Image' groups can be set using the new Routing Mixer and recalled or edited on the fly.

www.ctrelectronics.co.uk

Size Matters

There has been a definite movement towards small-footprint digital consoles over the last couple of years, as manufacturers have produced compact versions of their respective flagship products and in some cases launched whole new mixer lines in a bid to expand into the mass market. What's also interesting is that many of these smaller offerings boast similar power and features to their bigger cousins. PAUL WATSON looks at some of the options...

An eagerly-awaited launch came courtesy of Midas at PLASA last September. The manufacturer revealed its new Pro2 and Pro2 Compact (Pro2C) digital consoles, both of which, it claimed, could deliver the audio quality and performance of the flagship XL8 at a low price point.

Brand Development Manager at Midas, Richard Ferriday, says the reason the manufacturer chose to develop the two new consoles was to enable it to compete in a different market segment.

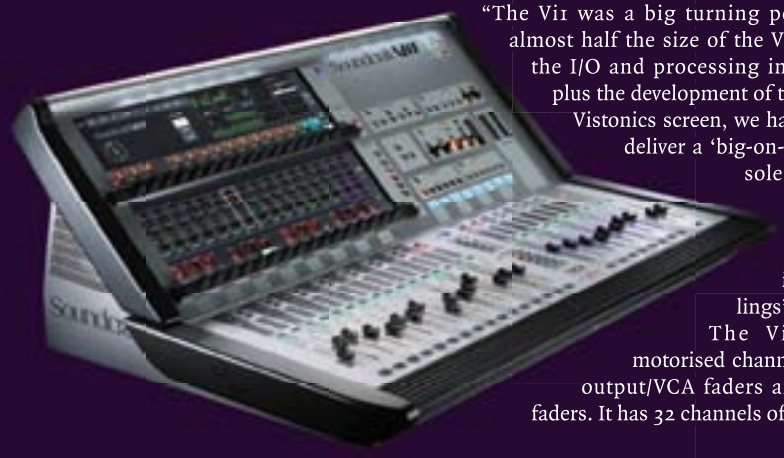
"We wanted to get into the market with the greatest volume of consoles, where people were spending $20-30,000 on a console," he explains. "That is an area where Midas has traditionally not been able to get to, so we wanted to design a console which would allow us to put Midas quality into a price point that people could afford."

The specification of both the Pro2 and Pro2C is identical: each has 64 channels, 27 busses, 32 analogue outs, two AES3 outputs and two AES3 inputs, up to 28 Klark Teknik 31-band graphic EQs, 192 MCA (Master Control Association) groups, six POPulation groups, and six effects engines – however their interfaces are different. The Pro2C has eight fewer faders, and is comparable in size to Midas' 24-channel Venice desk, it was also designed for applications where space is limited, but the power of a large console is required, Ferriday reveals.

Shrinking In Size

The success of Soundcraft's Vi6 and Vi4 led to the development of its smaller footprint Vi1, which was first shown in March 2010. The manufacturer then went on to launch its Si Compact series, targeted at installations and mobile applications where size and weight is an issue and the customer still requires a fully-featured console. It has continued to evolve since its inception eighteen months ago, and there are now three models: a 16-, 24-, and 32-channel version.

"When we set out our five year plan for digital consoles, we highlighted the trend towards high performance, small footprint mixers – particularly important for applications like theatres, where every paying seat counts, and of course touring," explains Andy Trott, Harman's Vice President and General Manager for mixing, microphones, and headphones. "The Vi1 was a big turning point for us, at almost half the size of the Vi6. By building the I/O and processing into the chassis, plus the development of the large-format Vistonics screen, we have been able to deliver a 'big-on-the-inside' console, capable of 64 inputs to mix while retaining many of its larger siblings' features."



The Vi1 boasts 16 motorised channel faders, eight output/VCA faders and two master faders. It has 32 channels of analogue input to 27 analogue outputs, six digital inputs and outputs, and four stereo FX returns, and channels are routable to 24 multi-function busses, plus L/R and mono mix buses.

"But we wanted to go smaller, hence the Si Compact range, this year we have shipped thousands of the 16- and 32-channel units and they are now capable of up to 40 inputs to mix with incredible processing power," Trott continues."

Features of the Si Compact 24 include 14 sub-group/

aux busses, four FX busses, four Stereo Lexicon effects engines, AES in and out, four matrix busses, four mute groups, and four analogue insert send-return loops.

Growing Up, Shrinking Down

DiGiCo's SD range is another that has grown significantly. The SD9 and SD11 may be physically smaller than the other SD consoles, however the manufacturer was careful not to compromise on quality or features.

"We're not trying to do a cheaper version as such – yes, we've hit a different market section with the SD9 and SD11, but they still have the remote mic pre-amps, and the sonic user interface hasn't changed at all," insists DiGiCo's Marketing Director, David Webster. "We're still hitting a lot of the same players, as well as picking up new ones, because there is zero compromising. The new SD9 Rack-Pack upgrade is a good example: two racks working together has given us 72 inputs from that little console – 64 from stage, the rest locally – so it ▸

really is incredibly powerful now."

DiGiCo's SD9 features 24 motorised faders and boasts a full colour TFT LCD touch-sensitive screen and the manufacturer's third-generation Stealth Digital Processing software. Its Super FPGA technology incorporates floating point processing to deliver superior headroom, dynamic range, and audio quality.

The ultra-compact and rack-mountable 12-fader SD11 features 32 input channels with full processing, eight of which can be configured as full Flexi Channels. It also has 12 Flexi Busses, which can be configured mono or stereo, and one SD11 can be linked to another via Cat5, to provide 24 faders for control.

"Another big thing for us is that the SD11 has a 5.1 master buss for the folding and unfolding of mixes, so of course it appeals to the broadcast market," Webster reveals. "And we have MADI compatibility within all of our consoles, so you don't need to buy any cards or interfaces."

Smaller, But No Less Able

Allen & Heath's iLive digital mixing systems have built a good reputation in the field also. Designed to bring an analogue feel to digital mixing, the manufacturer claims it boasts a flexible architecture with large-scale audio distribution and control. Leon Phillips, Production Manager at Allen & Heath, says in the iLive family, smaller does not mean less capable.

"We started out with three surface offerings which were modular in that you could choose what type of eight-channel I/O cards you needed in the four rear slots of the console, and then a smaller surface was asked for and we produced the 20-fader strip iLive-80," he explains. "The last edition to the series was, by demand, a rack-mount version of the surface with 12 faders and six layers: the R72. The 19-inch R72 surface with the smallest iDR16 rack has enough DSP to handle any combination of 64 inputs plus eight stereo FX returns all mixing to 32 mix outputs complete with EQ, dynamics, and GEQ."

A unique feature of iLive is that the DSP MixRack 'brain' is the mixer, Phillips says, which is controllable with a surface, via a laptop, or the manufacturer's MixPad application for the iPad.

The company's newest offering, however, is the scalable, 32-input GLD-80, which offers 28 XLR mic inputs and plug-n-play I/O expanders allowing for up to 48 inputs, eight stereo FX returns, 30 configurable buses, 20 mix processing channels, and DSP processing. It also brings in many features of the iLive such as the moving faders, coloured channel LCDs, touch-screen and processing control strip. The menu functions on the GLD-80 are also similar to iLive, but now include 'drag and drop' of fader-strip layouts.

"Two sizes of audio racks can be connected using the Cat5 plug-n-play connections, so systems can easily be configured for XLR inputs and outputs located where they are needed," Phillips continues. "Like iLive, the mix GEQ can be shown on the surface faders, and again the system supports the same interface option cards such as ACE, MADI, Dante, and Waves allowing split or combined systems and multi-channel record playback and insert capability from a compact starting point."

Allen & Heath also offers a range of plug-n-play remote controllers with soft-keys, faders, encoders, and tri-colour LEDs that can be added to any system to provide or enhance local control.

Shrinking, Not Shirking

In slight opposition to the norm, Presonus started with a compact console and continued to make it smaller, The StudioLive series is well know for its adaptability and multifunction nature, often installed where both show mixing and monitoring overlap, and now the company has brought out a 16 channel version to compliment the range.

The system has 16 channel inputs, four aux busses, EQ and dynamics on all channels, a 31-band graphic EQ on the main bus, a 16-in/16-out FireWire recording interface, MIDI I/O, plus the free StudioLive Remote iPad wireless control software. Others in the StudioLive range include the 16.4.2 and the 24.4.2.

Mixing Up The Market

Roland's M-300 is its latest compact digital live mixing console that utilises Roland's V-Mixing System. The 32-channel console connects via

Cat5 to all Roland digital snake products and can be controlled remotely in real-time from a PC connected via the USB port using dedicated control software. It can also be operated offline, allowing data to be created in advance and then located via USB on arrival. The manufacturer says the M-300 is the ideal digital mixing solution for installations or live events, and claims it offers premium features at an affordable price.

Roland's Sales Manager, Simon Kenning, says the reason for a smaller console is largely down to market feedback. Since its inception, it has been popular for installations, broadcast applications, and jobs where there is generally a lack of space.

"It has a raft of new features including the ability to take a preamp from any stage box and pass it through the console without having to put it through a mixing channel, which the M-400 couldn't do. It's also our first rack-mountable and portable system that is able to do distributed audio formats."

Mixes can be saved on the M-300 without the need for an external recorder via the output of the V-Mixer main, assigned aux buss, or matrix buss directly to a USB memory stick. The console boasts eight aux busses and four matrices, along with four-band EQ and dynamics on all channels, with 11 different built-in multi effects/PEQ and delay on all outputs. It also features 24-bit A-D/D-A. . AM

INFORMATION

www.midasconsoles.com
www.soundcraft.com
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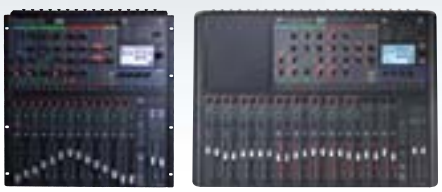

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Steinberg Nuendo 5.5

STEPHEN BENNETT thinks that the incremental update to 5.5 is under-selling the range of improvements in the latest version of Steinberg's Nuendo.

Steinberg has released an update to its flagship Digital Audio Workstation software Nuendo – the last major revision, version 5, was reviewed in July 2010 's *Audio Media*. This latest release has so many new features in all areas of the program that make its point five increment look modest in the extreme, and I suspect that the improvement is going to make the lives of those of us working in the audio and visual areas easier. A lot of the new features revolve around time and pitch manipulation, but there are also quite a few smaller changes that will make long-term Nuendo users very happy. Many of the improvements also bring Nuendo 5.5 in line with the features found in its main competitors – so will it be enough for those using competing software to move over to the Steinberg fold?

Nuts And Bolts

The first most obvious change in Nuendo 5.5 is the comping feature. When recording in cycle mode, separate lane tracks are created underneath each other. The audio on each of these lanes can be split, dragged, and resized, and the selected parts are added to the master comp track. Each separate lane track can be soloed which makes it really easy to quickly audition separate takes. This is an extremely simple and effective way to audition and create a comp track quickly and intuitively, and it's nice to see that both audio and MIDI data can be 'laned.' It's similar in concept to Logic Pro's take on Takes and, in my opinion, vastly superior to the way Pro Tools 10 handles comping. Another striking new feature in version 5.5 is the multi-track audio quantisation facility available when using the Group-editing mode. Once grouped, tracks can be made to conform to the tempo of a chosen track, all without phase issues. You have control over which tracks get priority, and it works extremely well – audio artefacts are kept to a minimum. Other editing actions such as resizing affect all grouped events, parts, or selection ranges, making it easier to edit multi microphone parts or even whole live multi-track recordings.

The tempo detection feature can be used on any audio material with detectable beats and will generate a tempo track map for material that hasn't been recorded to a click. Other audio can then be conformed to this map using the audio quantisation feature, or it could just be used as a kind of free played click track. It worked pretty well on the bass and snare drum tracks I tried it on, but there's plenty of fine-tuning available if it misses a beat. Nuendo 5.5 now has an audio replacement feature that makes it pretty straightforward to replace or enhance recorded audio – and it's not just for drum replacement either – I used it to locate and replace some dialogue and

(Fig 2). Pitch warping.

THE REVIEWER

STEPHEN BENNETT has been involved in music production for over 25 years. Now based in Norwich he splits his time between writing books and articles on music technology, running his own Chaos studios and working in the Electroacoustic Studios in the School of Music at the University of East Anglia. He's also a filmmaker with several music videos and short films to his credit. www.stephenjamesbennett.co.uk

(Fig 4). VST Amp Rack.

sound effects. Transient detection algorithms place indicators on a track and the user clicks on the MIDI note button to create data to be used by an external synth, sampler, or plug-in instrument. Simple and effective.

Have You Got The Time, Guv'?

As mentioned in the introduction, time and tempo processing has been improved in the latest version of Nuendo and the most obvious sign of this is the availability of zPlane's élastique pro time and pitch shift algorithms. I've been using the company's excellent Vielklang harmony generation software for a while and can confirm that the quality of the algorithms in Nuendo 5.5 are up to the same standard. Even on complex polyphonic parts, you can apply pretty extreme pitch and time domain changes to your audio – which is going to be a godsend for those working in the Foley or sound effects department.

Steinberg also provides an alternative algorithm, MPEX, that may work better on certain material and a 'Standard' mode for when CPU is tight or the processing is not mission critical or when using Nuendo's Melodyne like VariAudio – which is a particularly nice way to get right in and edit audio events without all that mucking about with extra plug-ins. You can also generate MIDI data from VariAudio and, if you also have the Nuendo 5.5 Expansion Kit, generate note expression data to enhance the realism of VST instrument performances.

Bits And Bobs

There have been numerous improvements to the kind of data that can be displayed on folder tracks, and improved compatibility when exporting to other DAWs (especially Pro Tools.) Exporting to stems is a lot easier and any notepad data in your Project can now be exported as a text file – a small but worthwhile feature if you're collaborating with others. Automation has been improved as has offline processing of audio – you can now extend the range of processing of any trimmed event so that it can be changed later.

Nuendo 5.5 also almost inevitably supports 64-bit operation in OSX – which should come as a relief for those working on virtual orchestral scores.

The Key Editor has been improved, with Expression Maps, Note Expression, Quantize, Transpose, and Length parameters available, along with scaling tools for controller and automation data.

Finally, there have been improvements in the video handling including stable HD playback, 64-bit support for Blackmagic and Decklink video cards and a Boost function that improves playback with codecs that don't use all the threads on multiple core computers. Oh, and you also get the VST Amp Rack for guitar-like processing – rock on.

(Fig 3). Comping takes with Lanes.

Conclusion

Some of the improvements in version 5.5 of Nuendo are incremental while some, such as lane comping, are game changing. The program has lost none of its speed and stability, and it ran on my quad core Mac Pro with a RME PCIe audio interface with no problems at all.

Because it's multi-platform and video friendly, it's a sensible choice for those working in post who don't want to go down the Pro Tools route – and it has several workflow improvements that make it nicer to use, at least for this reviewer, than Avid's offering.

For version 5 users, the upgrade is a no-brainer. For those thinking of dipping into Steinberg's flagship, I think there's been no better time to do it than with version 5.5.

INFORMATION

Nuendo 5 – GB£1,531.00 (inc.VAT)

Steinberg
www.steinberg.net

NUENDO SYNCSTATION

Probably the second least sexy area of the modern studio, accurate and stable digital clocking is, nevertheless, probably amongst the most important when you are using multiple digital devices. Though individual units in your studio may have extremely good timekeepers, having a central unit to which all others are synchronised makes a lot of sense. Enter Steinberg's Nuendo SyncStation, a 1U rack that's designed to be so much more than a simple studio clock. The front panel is dominated by a display and a few controls for use in stand alone mode, but it's at the back panel where all the action really is. Designed to synchronise Nuendo to video tape and analogue audio tapes recorders and centralised house sync generators it also has a 25pin General Purpose Input Output (GIPO) connector for footswitches, on-air lights and custom applications. The SyncStation can generate various types of clock and distribute these around the studio via four wordclock BNCs, two AES and S/PDIF ports and two Toslink outputs simultaneously. The unit can read and generate a master timecode source for other DAWs to follow and generate MIDI machine control and Sony 9-pin RS422 protocols for legacy equipment. The device can work with the VST System Link which sends sample accurate position information from Nuendo back to Nuendo SyncStation and which then calculates an offset to correctly align Nuendo to the edge of the video frame – which Steinberg say is an extremely accurate method of synchronisation. Installation was a matter

of connecting a USB cable to the computer to allow the device to send MIDI, Transport and Timecode information and then making sure that Nuendo could see the unit. The SyncStation also operates in a stand-alone mode with all adjustments being made from the front panel controls. I dragged out a few 'legacy' tape and video recorders to check out the unit. After a bit of puffing and wheezing (sometimes from me), it was a satisfying experience to see them respond to Nuendo's commands. Using the unit as a master clock for a RME/Focusrite interface and Lexicon and Focusrite hardware processors also went without a hitch – the SyncStation was stable and unfussy. If you have a lot of digital devices to clock, want to run multiple DAWs or legacy tape machines alongside Nuendo, the SyncStation makes a lot of sense and could slip in easily into the centre of your studio.

The Invasion Equation

Joachim Garraud

PAUL MAC talks to electronic artist Joachim Garraud about what makes the man... and the music.

Joachim Garraud is a musician, DJ, remixer, producer, composer, radio presenter, engineer, and probably a lot more besides. He has produced and collaborated with artists such as Geyster, David Bowie, Kylie Minogue, Mylène Farmer, Jean Michel Jarre, and more, as well as commanding his own large following for his solo projects and DJ shows. From the early nineties Garraud has been at the forefront of the techno scene and has played some of the biggest ever electronic music events around the world.

His current base is Zemixx studios, around 9km outside of Paris, which he bought around two years ago while searching for the best of both worlds – a high-spec studio and a family home. The facility was previously called Local Studios and was, amongst other things, the venue for the recording of *Joe Le Taxi* by Vanessa Paradis. There are three main studios – one on the ground floor and two in the basement. The control room one on the ground floor is Garraud's personal production room, while its associated large recording booth now functions as an office for his business team.

One of the spaces in the basement was actually added by Garraud. "I was looking to make this house like a hub," says Garraud. "...An electronic musical hub. Because now everybody is working across the Internet, and never really meet each other. I really like people to come and share a drink, and maybe make some music."

Zemixx is much more of a personal studio than a commercial one. One of the basement studios is on let on a year's lease agreement for TV music production, and soon the other will be leased too, possibly to a currently unconfirmed electronic music duo. There is no short-term usage available at Zemixx.

Room To Groove

The traditional studio model probably contains a lot of superfluous space for an electronic musician, so it's interesting to note that Garraud has found real value in a fully isolated, treated, architectural monitoring environment. "Since I've been here, I'm producing much faster," he says. He explains that the room has taken away doubt from the process – he can trust that what comes out is what will be put out. "I don't have any questions, so I'm going faster. Normally to make a track I need three days, and for two years now in this room I'm doing that in two days or maybe one day. It goes very fast now.

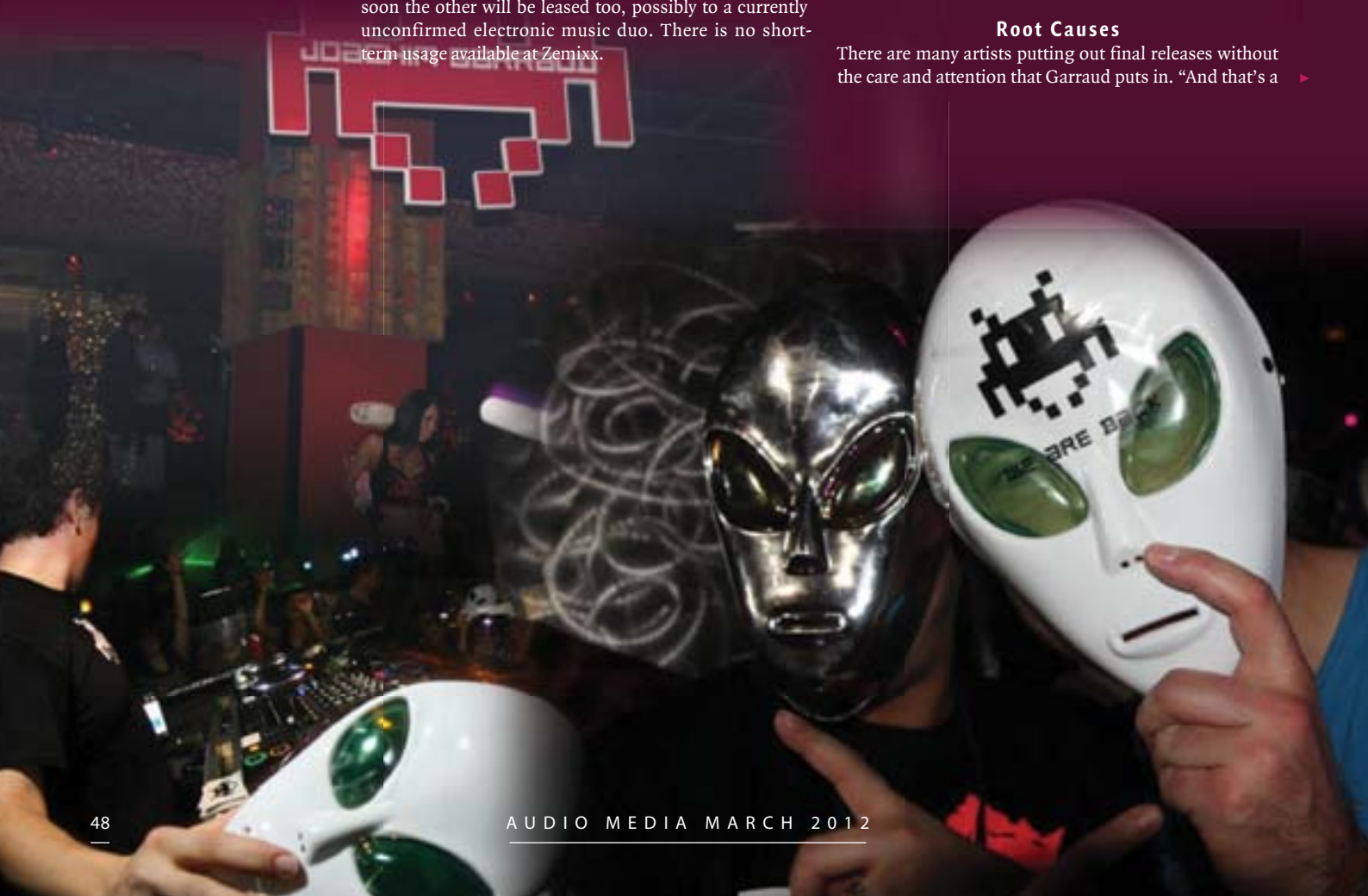
"To get a good balance between bass and drums, let's say, I need five minutes, where before I needed an hour – something like that."

Like so many these days, his creations start and finish in the box, with no mastering or finishing required: "The mastering process is included in the production process," he explains. "When I'm starting a project, I already have the mastering plug-in master [buss], which means that even when I'm composing, I'm composing with the final sound... There's no one between here and the master file. I'm selling exactly the file out from my laptop."

That's one of the reasons that having an excellent room is so important to Garraud: "There's no problem, no doubt about what sound is going to be released from the room." Garraud is currently testing the new Focal SM9s for his room and has had a pre-production pair on test.

Root Causes

There are many artists putting out final releases without the care and attention that Garraud puts in. "And that's a ▸



shame," he comments, "Because there are a lot of bad things on the market. But sometimes you have some good accidents. For example, there is one very amazing story about the first album of Daft Punk, called *Homework*. This album was not mastered, they did it on a small laptop in their bedroom... Because they needed electrical level they put compression everywhere on each track, and they came up with a new sound. A mastering engineer would never do that and would say it's impossible. But they did it, and it sounds good for them."

The 'whatever works' view is probably one of the biggest catalysts for originality in music, and Garraud is open minded about routes to great music. On the other hand, expertise and fluency are parallel routes to experimentation and Garraud throws some of this into his own melting pot too, with a musical background starting at six years old and classical training in piano and percussion at the Conservatoire De Paris. It was also there that his explorations of the electronic genre began. "At the same time I was very excited about the computer. In the morning I was in love with the classical music, and in the afternoon I was in love with the machine, trying to make music with the first computers... In 1984 the music computer was a revolution for me – now I could merge music and computer into one love."

Garraud also had a very standard apprenticeship in studio work, with engineering experience in analogue SSL and Neve rooms to 24-track tape. "I learned on tape," he says. "...The basic things. And now, when I see how everybody's doing music, on a laptop... Everybody wants to be a DJ, everybody's doing music. I think I'm lucky to have one foot in the analogue generation, and one foot in the digital virtual laptop generation... But I also feel very excited about this brand new generation, though I think they need to be careful about how they make sounds now...."

"I'm very proud of one thing, when I made my album in 2008, I sold the physical CD and also a download." In fact, Garraud made three versions of the download available, all for the same price – MP3, Wav, or 'super WAV' (96k/24-bit). He made a real effort to communicate the benefits of the high-res version to his fan-base, encouraging them to listen and "feel the difference." After some positive comments he made all of the tracks individually available as high-resolution files, pushing the idea of starting with the high-res and converting to MP3 if the purchaser needed to. "Seventy-six percent of the tracks I sold were the high quality ones," he reports. "Same price... You give the opportunity to the young generation to listen to something different to the MP3. They're not silly. The good thing, I think, about MP3 is that it's made music bigger; music is everywhere now, and that's a good thing. But now we have to work on the quality."

Into The Mix

Putting all of Garraud's influences, experience, and expertise together somehow makes it even more difficult to pin-point what really makes the difference – what makes Joachim Garraud successful when so many other DJs and electronic production outfits are jostling for single figure hits on youtube? It's a complicated answer to unravel, but has to include sheer musicality, energy, and a live presence that competes with the best of the rock world.

Musically, he still puts faith in melody and harmony: "I start by playing keyboard, just to find a good melody in the top. After that, I produce a song. Some people don't care about melody or harmony or writing a song, they're just working round a sound first. They choose a good sound base, and make a song fit this sound. They're not thinking about how their song will stand up without this sound."

Garraud's involvement in everything from the bare bones of a song to its final production means that he is an artist who has absorbed the roles of producer and engineer. Many try this, but few have the multi-faceted talent pool to carry it off.

"I have many hats," he goes on to say. "I'm DJ'ing every weekend, and the thing is, I can see that now, you can have some music releases with the name of the producer, the name of the DJ, and you don't know who the singer is. The singer is a guest, and the producer is the artist."

It's an empowerment of sorts, and may have contributed to the disappearance of musical and production direction from within the big record labels. Though these are the same record labels that are turning to the live scene to create a buzz (and revenue) from electronic artists as well as more traditional acts.

The live exposition of electronic acts is something that Garraud has also considered. Fans spend a lot of money to find something extra to the download – an energy, an atmosphere, and a performance.

"I love Daft Punk, but when you go to see the concert and you see two guys with masks... you can't see the band because they're inside a spaceship, and you can't see any singer or musician. You get a super light show, but is it really a concert? How can I compare this with Rage Against the Machine, five guys playing live?

"At the beginning I was very frustrated

Perfect take every time ...
Gil Norton
Foo Fighters
Pixies
Gomez
Feeder
Counting Crows
Maximo Park
"I can't remember a single session over the last 5 years on which I haven't used an SE mic"
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because I started as a DJ – I was only a CD player. I played that CD and then onto that CD, and made a good mix between both. It was just to make people dance, but I was really frustrated." However, at one gig Garraud took out a keytar that had been given to him by Jean Michel Jarre... "I made a loop on the CD, took the keyboard, choose a bass sound... People had come to see a DJ and now they were in a live show. It changed completely the spirit of the night. That was crazy, and it was very exciting to share this musical moment with the audience. I was different every night... you can feel the difference... You're doing unique performances with people, you're sharing, you're forming a special link with people.

"At the end of the show the people say they love my concert. That's the best word because they come to see a DJ, and at the end it's like a concert."

That was then, and now the DJ/electronic musician is a certified norm for the live circuit. "Today DJs are so famous that we are on the same stage as The Prodigy or Rage Against the Machine. In a festival six months ago in Australia, I followed Rage Against The Machine. You really need to give something strong to the people, because you're playing after them. I did the link with a keytar solo, and people understood that we are doing something between Rage Against the Machine and the classical DJs.

What Next?

Garraud has been stretching his talents into many fields of music creation. He has brought his wide musical inspirations into film music, where he is equally comfortable composing for traditional instruments, and turning on the techno when necessary – for example, in the French movie Une Femme de Ménage (Claude Berri). He is now working on a US movie, and plans to move to LA with his family for a period of around three to four years so he can capitalise on his popularity in the US, develop his music, and also work on the film composition side. Zemixx, however, will remain as Garraud's base, and he will be returning regularly.

INFORMATION

www.joachimgarraud.com

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Live Microphones

There are a lot of live microphones on the market, with every new product closing the gap between studio and stage sound. There is a model out there for almost every live application, so here is a selection for you to peruse at your leisure...

Accusound provides microphones that can be retro-fitted to acoustic instruments, and among other unusual systems, it has both a directional and an omni microphone system for bagpipes. They both come in two varieties, one for two drone bagpipes and one for three drone bagpipes. The directional system offers a hyper-cardioid chanter microphone, plus the requisite number of omni drone microphones. The drone microphones are connected together and fed into one channel of the supplied pocket mixer, the chanter microphone goes into the other channel. The omni system is the same but with all omni-directional microphones.
www.accusound.com

Audix Microphones offer the Micro-HP, a sister product to its Micro-D miniature rim mount drum microphone for use with hand percussion instruments. The Micro-HP utilises a cardioid polar pattern to capture the attack of the head as well as the tonality and transients of the instrument. The Micro-HP has the ability to handle very high sound pressure levels without distortion, to isolate the sound of each instrument in a percussion ensemble, and to minimise gain before feedback for live stage applications.

www.audixusa.com

The **CAD** D189 is a super-cardioid dynamic microphone, which limits feedback and minimises pick-up of peripheral off-axis sound. It has a broad and flat frequency response that gives a natural sound, and an internal multi-stage pop filter reduces wind and breath noise. The microphone has a Flex-Form steel grille screen and features the original CAD Impact Noise Rejection system, I.N.R-2, in which a rubber shock mount separates the transducer from the body.

www.cadaudio.com

The latest addition to **AKG**'s WMS40 MINI series is the WMS40 MINI2 Dual Wireless microphone system, which features a dual channel receiver. It is available in three sets – Vocal, Instrument, and Mix. The vocal set features two HT40 MINI dynamic cardioid microphones and the SR40 MINI2 Dual receiver, while the instrumental set includes two PT40 MINI body packs, the SR40 MINI2 Dual, and a guitar cable. The Mix set offers one Ht40 MINI, a PT40 MINI, and the SR40 MINI2 Dual.

www.akg.com

The TG V90r is a high-end model in **Beyerdynamic**'s Touring Gear series. The company claims it is the only ribbon microphone in the world that can stand out with live vocals on loud stages. The microphone features, unusually for a ribbon microphone, a cardioid polar pattern. The clear sound is due to the ultra-light (approximately two micrometres thin) pure aluminium ribbon that provides exceptional impulse fidelity and outstanding transient behaviour.

www.beyerdynamic.com

Countryman Associates says its B2D microphone is the smallest directional lavalier in the world. The tiny microphone has a hyper-cardioid pattern that provides an extra 6-10 dB of headroom compared to an omni-directional lavalier. It has a low distortion at SPL up to 140dB, and an accurate frequency response tuned for excellent speech intelligibility in chest and head worn applications. Detachable cables allow users to swap from one wireless transmitter to another, or to an XLR input on the mixing console.

www.countryman.com

Audio-Technica has released some special limited edition microphones to celebrate its 50th anniversary. This includes the AE6100/LE hyper-cardioid dynamic handheld microphone. There are only 1,200 of these models being produced worldwide, and it features a silver-coloured metallic finish with blue accents and a unique serial number etched onto the surface of each microphone. The AE6100/LE has a polar pattern tailored for excellent on-axis response, and offers maximum feedback rejection and anti-shock engineering for low handling noise.

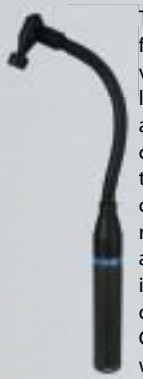
www.audio-technica.com

The en-CORE 300 is the flagship condenser performance microphone in **Blue**'s en-CORE series, with its roots in Blue's tuned condenser studio microphones. The capsule is hand-selected and tuned for an open, detailed, and present sound. It is intended for use by powerful vocalists on stage. The capsule is matched to a custom-designed phantom power circuit to deliver consistent tone and minimal noise. Blue's proprietary floating capsule mount provides isolation and minimal handling noise without pads or filters.

www.bluemic.com

DPA's d:fine headset microphone is available as an omni or directional model.

Both have been ergonomically designed to fit easily and seamlessly, adjusting to fit any ear size and head shape while mounting on either the left or right side of the head. By rotating the boom, the microphone can be moved from left to right ear or into the optimum position. The boom is newly available in two lengths. Two mounts are available: the simple and secure single-ear piece, or the dual-ear mount for more energetic performance applications.
www.dpamicrophones.com



The DP30/C from **Earthworks** is designed for close miking toms and snare drums, and will take a direct hit from a drumstick. A right angle mic is mounted to the gooseneck for easy positioning. The Drum Periscope is mounted parallel to the drum shell with the RM1 RimMount. Its very fast impulse response makes it ideal for reproducing rich low frequencies and full detail of the attack, plus shorter diaphragm settling time prevents quieter attacks from being blurred by earlier loud attacks.
www.earthworksaudio.com

The KMS 104 D and KMS 105 D from **Neumann** are the digital versions of the KMS 104/105 analogue microphones. They provide all the features of their analogue counterparts, with the advantages of digital circuit technology, such as extended dynamic range, a more robust operation, and the avoidance of clipping as a result of the integrated peak limiter/compressor. Using the digital microphone interfaces with the Remote Control Software allows pre-programmed software to be stored in the microphones.
www.neumann.com

The e 965 is a handheld vocal microphone with true condenser capsule in large-diaphragm technology from **Sennheiser**. The 965 is the top model of the evolution 900 Series, and combines the best available features of a stage microphone with Sennheiser's acoustics experience. It has a switchable pick-up pattern – cardioid/super-cardioid, low cut switch, and switchable pre-attenuation. It also offers a highly effective integral acoustic pop and windshield, and a shock-mounted capsule to suppress handling noise.
www.sennheiser.co.uk

The RE320 vocal and instrument microphone from **Electro-Voice** is designed for applications requiring extremely low noise and the best possible tonal and transient response. The Variable-D pattern control minimises positional and off-axis tonal shifts, while the integrated humbucking coil and integral pop filters provide virtually noiseless performance. The unique dual-voicing switch selects from two response curves. The RE320 is based on the design of the RE20, a classic Electro-Voice microphone.
www.electro-voice.com

The **Rode** S1 live condenser vocal microphone has at its heart a super-cardioid 1/2-inch true condenser capsule, tuned to virtually eliminate feedback in onstage performance. The combination of internal shock mounting and a built-in high pass filter dramatically reduces undesirable low frequency background and handling noise. Multiple layers of acoustically optimised steel mesh in the microphone head filters breath, wind, and plosive noises without affecting the microphone sensitivity or frequency response.
www.rodemic.com

Shure's KSM141 is a dual-pattern end-addressed condenser microphone with a rotating collar, allowing easy switching between a consistent cardioid or true omni-directional polar pattern. The microphone can withstand extremely high sound pressure levels and has a three position switchable pad. It has a high output level, low self noise – a subsonic filter eliminates low frequency rumble caused by mechanical vibration - and reproduces low frequency sounds exceptionally well.
www.shure.co.uk

Heil Sound's PR 31BW was inspired by Bob Workman, FOH mixer for the Charlie Daniels Band, who wanted to cut the chassis of his PR 30 microphone in half. The company got together with Workman and configured a chassis that would hold all the components of the existing Heil Sound PR30, inventing a new large diaphragm dynamic microphone in a compact four-inch chassis that can be placed virtually anywhere. Particularly useful for drum applications including underheads – as opposed to traditional overhead miking – it is also ideal as a vocal microphone for drummers.
www.heilsound.com

sE Electronics has released the second generation of the H1 hand held live condenser microphone. The condenser capsule has been re-voiced and tuned specifically to "roll off a little more high frequency and take a higher SPL". The H1 has a specialised internal shock mount, which gives it ultra-low handling noise, equivalent to a dynamic mic, while maintaining the sonic performance of a high quality condenser. The new H1 has a strengthened mesh head, and is finished in all black rubberised paint.
www.seelectronics.com

The **Sontronics** STC-80 is a dynamic handheld microphone, engineered specifically for vocals and speech but also useful for miking guitar cabs, snare drums, and toms. It has a high-quality dynamic capsule and cardioid polar pattern, and its solid body features radial grooves to aid grip when holding the microphone on stage. The microphone includes a microphone clip in the package as it is slightly thicker than other microphones in its class.
www.sontronics.com

Lewitt's LCT 640 is an Austrian-designed and engineered reference-quality large-diaphragm condenser microphone. In addition to the standard omni-directional, cardioid and figure-of-eight polar patterns, the LCT 640 offers a wide-cardioid and super-cardioid characteristic. It offers a dynamic range of 135dB and an extremely low self-noise of 10dB-A. The microphone has a three-level low-cut filter and three-level switchable pre-attenuation, as well as automatic attenuation, key-lock, clipping history, push buttons, and a light-up user interface.
www.lewitt-audio.com

Schertler's LYDiA microphone system for fretted instruments is the result of more than 10 years of research and development in the field of under-saddle systems. LYDiA reproduces the true sound of the instrument via an ultra linear condenser microphone with solid diaphragm and integrated electronic settings. The sensor is based on Schertler's 'air chamber' technology, and the company says its hi-tech miniaturised construction and effective shielding make it safe and reliable for all types of performance. The technology is compatible with previous Schertler under-saddle systems.
www.schertler.com

Telefunkun Elektroakustik has recently introduced the M81 universal dynamic cardioid microphone, which has a more linear frequency response than the company's popular M80, resulting in a microphone with clarity, but with a different depth and body to the tone, and less of the M80's characteristic high-end response. The M81's frequency response attenuates the high end, making the microphone excellent for electric guitars, percussion instruments, rack and floor toms, as well as horns, particularly the trumpet.
www.telefunken-elektroakustik.com

video guide

A Sound Pro's Guide To Video

Television Technology: Part 6

The compression process continues as KEVIN HILTON charts the flow from data bits to TV streaming.

The MPEG-2 compression process begins with coding, leading to video data preparation, temporal compression, picture grouping, and block matching, all of which was detailed in last month's Video Guide. The next stage is the creation of predicted and difference frames to give more information to describe the video images in a picture frame.

This is to supplement the data already given by the motion compensation vector, which on its own is not enough for defining the contents of a frame. In most cases the vector is able to provide information for a moving block but cannot describe new components, for example anything that becomes visible because the block moves in the frame.

To provide additional data, the processor has to calculate how the P-frame – predictive or predicted frame, which contains changes to a frame compared to the original, foundation I-frame (intra-frame) – would appear if it were restructured with only the motion compensation vector and then compared to the frame itself. The disparity between these details the required information, which is combined with the motion compensation vector to fully describe what is in the picture frame.

The P-frame is obtained through adding together the motion vector and the frame that originally produced it. By subtracting the P-frame from the present frame a difference frame – also called the residual or prediction error – is produced and comprises a sequence of pixel values. In this form it is ready for later spatial data compression.

The old cliche 'garbage in, garbage out' is inelegant and rarely used these days, but it does have some relevance in video compression. If the motion vector is inaccurate, then the resultant pictures will be of poor quality. This is because it generates a speculative and inaccurate prediction frame, which results in a big residual error and a high bit rate. The ideal situation is to have a very accurate motion vector that is as much like the frame itself as possible and so produces a low residual error with few data bits and, consequently, a low bit rate.

Motion vector accuracy can be improved by using bi-directional prediction, which is based on both the preceding and future locations of a moving matching block. Two motion estimators form the basis of bi-directional prediction. These gauge the forward and backward motion vectors, with a past frame and a future frame to anchor the respective forward and backward points.

These values are produced by the current frame being passed through two motion vector estimators – one for forward motion, the other for backward motion. The forward motion estimator compares the frame macroblock by macroblock with the previous frame, which is stored in the past-frame memory, from which a forward motion vector is calculated. At the same time the backward motion vector estimator compares the same frame, again macroblock by macroblock, with a future frame saved in the future frame memory. An interpolated motion vector, also called a bi-directional motion vector, can be attained though the average of the forward and backward motion vectors. From each of these vectors three possible predicted frames could be produced: the P-frame, B-frame (bi-directional predictive frame), and the average or bi-directional frame (Bi-frame). By comparing these three predicted frames with the current frame three residual errors are produced. The one containing the smallest error, in other words the lowest bit rate, is selected for the rest of the process.

> "The old cliche 'garbage in, garbage out' is inelegant and rarely used these days, but it does have some relevance in video compression. If the motion vector is inaccurate, then the resultant pictures will be of poor quality."

Spacing Out

The next stage on from temporal motion compression is spatial image compression. Removing redundant spatial information in the MPEG process is done through a DCT (discrete cosine transform) processor. DCT is a form of Fourier transform, which, like other transforms, takes data from the time sphere and communicates it as frequency. Video slices are fed into the DCT processor in a sequence of 8x8 blocks, which might belong to a luminance frame (Y) or a chrominance frame (Cr or Cb). The pixel of each block is represented by sample values, which are put into the DCT processor to be translated into an 8x8 matrix of DCT coefficients that represent the spatial frequency of the block. After this the coefficients are scanned and quantitised prior to transmission.

During the quantisation stage the coefficients are rounded up or down to make a smaller set of possible values, thus producing a simplified group of coefficients. Prior to the quantitised coefficients being coded, the DCT matrix has to be reconstructed as a serial stream. This is done by scanning the DCT cells in a zigzag fashion. By carrying out the scan in this pattern it is more likely coefficients with significant values are processed first.

Two compression processes are used to code the quantitised DCT coefficients: run-length coding (RLC) and variable-length coding (VLC). RLC is based on having a number of zero coefficients in the signal alongside non-zero DCT coefficients. These are not transmitted as zeros but the number of zero coefficients is encoded with the next non-zero coefficient. This grouping technique reduces the amount of codes need to transmit the values.

A unique code is assigned to each group, with the final sequence of zeros being gathered together and replaced by one EOB (end of block) code. The code for each group is established by the probability of its occurrence. The most frequent are allocated a shorter code word than those that happen less frequently. This is the basis of VLC, which is also called entropy coding. The best-known

GLOSSARY

Huffman Coding

This is an entropy encoding algorithm for lossless data compression that is independent of the particular characteristics of the medium it is being applied to. Lossless compression is a form of data reduction that enables the original data to be recreated exactly from the compressed data. The coding scheme was developed by David A. Huffman during his PhD studies at MIT. It was published in 1952 as a paper entitled A Method for the Construction of Minimum-Redundancy Codes. Huffman coding is based on the use of a variable-length code table for encoding a source symbol – for example a character in a file – where the variable-length code table has been derived in a specific way based on the estimated probability of occurrence for each possible value of the source symbol.

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Television Technology: Part 6

news

French manufacturer ATEME, which specialises in H.264/MPEG-4 video compression systems for broadcast contribution links, distribution, multi-screen live streaming and video-on-demand services, has installed over 100 if its Kyrion hardware encoders in Brazil. These will be used for high definition terrestrial broadcasting and conform to the ISDB-T (Terrestrial Integrated Services Digital Broadcasting) International standard, a variant of the Japanese ISDB format developed by the Brazilian government and which is now used widely in South America.

Other ATEME products, including the TITAN software transcoding range, are also being used in the Brazilian broadcast market. TITAN is now part of cable, satellite, and telecom networks for the transcoding of video-on demand material, which is distributed at low bit rates to multiple screens.

To show its commitment to the Brazilian market ATEME has been worked with multi-screen video technology companies in the country, including Broadpeak, KIT Digital and Netgem, to organise two conferences on the different technologies. The Over-the-Top Television Seminar takes place on 5 March at the Renaissance Hotel in San Paulo and on 7 March at the Sheraton Hotel in Rio de Janeiro.

The seminar is aimed at "Brazilian operators who are challenged with extending their existing IPTV services to OTT and multi-screen solutions". ATEME's Director of Applications Engineering, Gustavo Marra, comments, "ATEME and our partners will address how Brazilian operators can provide premium content services over the Internet and unmanaged services. In addition, we will show the operators how to reach a wider audience with the pristine video quality that is expected by the consumer."

form of this is the Huffman code (see glossary), which is based on the assumption that the probability of each DCT value is already known.

The bit rate produced by the successive quantisation, RLC and VLC processes is dependent on the complexity of what is in the picture, in addition to the amount and type of movement involved. If this bit rate varies at all then it takes up a variable amount of bandwidth, with the risk that it will go beyond the total bandwidth available to carry the signal, which will have a negative effect on the quality of the pictures.

This means the bit rate should be constant and to achieve this the quantisation of the DCT matrix block has to be dynamically altered in a process called buffering. The bit-stream is passed through a memory store and then released at a constant rate when the signals are transmitted. Any increase in the bit rate will flood the buffer, activating a bit rate control device. This reduces the quantisation level, which in turn decreases the data bit rate.

Although compression is a vital part of the new age of digital broadcasting and, at its very best, is a highly sophisticated process that carries out a difficult task, it is not always seen as a good thing. Heavily compressed records and radio broadcasts using old analogue technology got the process its bad reputation in the early days and this continues today, regardless of more advanced processes.

The problem is that compression rates can be set anywhere on the scale available to the system being used. The higher the rate then the lower the quality of the picture, something that can be seen on some of the less scrupulous digital TV channels that are squeezed on to a multiplex with lots of other services. Because of the negative connotations the word compression has picked up, many people now prefer to use the terms bit rate reduction and non-destructive coding techniques.

Transmission, On

Once a programme or video package has been compressed – bit rate reduced or non-destructively coded – it is ready to be distributed or transmitted. The big selling point of digital television (DTV) is the greater number of channels available to viewers. More channels can be carried on a single TV frequency, as opposed to the one that could be accommodated in the analogue domain.

More services can be put on a single carrier by forming them into a multiplex, which is then transmitted as a single channel that takes up less space in the frequency spectrum. At its most basic multiplexing is defined as the simultaneous transmission of several messages or signals on a single communication channel.

For MPEG-2 compressed DTV the signals are multiplexed, with the coded audio and video bitstreams formed into packetised elementary streams (PESs). The PESs themselves are multiplexed with the pertinent service PESs, in addition to the PESs of other programmes. Once multiplexed the PESs are formed into 118-byte packets, which make up a transport stream.

The channel encoder is next in the chain, with the transport stream used to modulate an appropriate carrier. In MPEG-2 the definition of the transport stream is completely specified, while MPEG-4, used for high definition TV and low bit rates, does not set out a specific transport system. In this way MPEG-4 material can run on different transport layers and has the possibility to move from one transport layer to another. To allow for HDTV the MPEG-2 transport stream spec has been amended so it can accommodate MPEG-4 coded programmes.

Next month the Video Guide will look how the transport stream is formed and then multiplexed for transmission.

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Gil Norton: Foo Fighters, Pixies, Gomez, Feeder, Counting Crows, Maximo Park

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M*A*S*H

The rule-breaking of the film itself was echoed by Altman's approach to audio direction, taking a technique previously used and with a new twist making it his own signature sound.

FEW FILMMAKING TECHNIQUES are wholly original, but even if something has been done before, a director can take it and make it his own. Robert Altman made his reputation directing large ensemble dramas with a satirical edge, characterised by overlapping dialogue and layers of sound that often obscure what is being said but which highlight another aspect of the story.

This style can be seen in most of Altman's films, notably *Nashiville* (1975), *The Player* (1992), *Short Cuts* (1993) and *Gosford Park* (2001), but it first came to a wide audience in M*A*S*H (1970), the film that established him as a major director and part of the iconoclastic 'New Hollywood' movement of the early to mid-1970s.

Adapted from former army doctor Richard Hooker's novel, M*A*S*H follows the emotional, sexual, and sometimes professional exploits of the doctors, nurses, and support staff of the 4077th Mobile Army Surgical Hospital, somewhere near the frontline during the Korean War of 1950-53. The book is shot through with the cynical humour needed to survive in those chaotic times, but Ring Lardner Jnr's Oscar-winning script brings that to the fore and Altman's unconventional staging and improvisational approach ensure this is no ordinary war film or comedy.

This is made clear from the opening. The film begins with shots of Bell H-13B helicopters flying bloody, seriously wounded soldiers to the hospital camp (a sequence used for the TV series version of M*A*S*H, which ran seven years longer than the Korean War), accompanied by the nihilistic song Suicide is Painless, with music by Johnny Mandel and lyrics from Altman's then 14-year old son Mike.

Chopper noise does not dominate M*A*S*H as it does the equally anti-war Apocalypse Now (1979), but Altman still uses it as a jarring harbinger of trouble.
As the aircraft land the commander of the camp, the ineffectual Colonel Henry Blake (Roger Bowen), yells orders to his company clerk, Corporal Walter O'Reilly (Gary Burghoff). Known as 'Radar' due to his ability to know when something is going to happen, O'Reilly pre-empts Blake's instructions, repeating them a split-second after they are given. This is disorientating but shows where the true power lies. The fact that Blake does not object implies he does not notice, does not care, or knows he is not really in charge.

The scene cuts to a transit base to introduce the chief subversive, 'Hawkeye' Pierce (Donald Sutherland), whose entrance is accompanied by stirring patriotic martial music. On arrival at the 4077th, Hawkeye and redneck surgeon Duke Forrest (Tom Skerritt) make their way to the mess tent. As Duke begins his creepy and unwanted pursuit of nurse Lieutenant Dish, Blake and his staff watch the new arrivals with annoyance.

The two conversations blend with each other as the camera perspective changes. When Blake and his officers come over to introduce themselves, their names and greetings tumble on top of each other; this is initially frustrating but it underlines that individuals and personalities have been sublimated in the fog of war.
A further sign of Blake's lack of authority comes when Hawkeye also speaks over him, showing that he has quickly worked out his supposed commanding officer. This approach is used later in the film when Hawkeye and his partner-in-crime and insubordination, Trapper John McIntyre (Elliott Gould), browbeat Blake by talking across him.

Hawkeye and Duke are soon plunged into the gory and seemingly endless process of stitching young soldiers back together. During the operating scenes the camera tracks between the different tables; as it moves the conversations move too, with the surgeons and nurses discussing the case or just bickering.

Building In Layers

Howard Hawks in the 1930s and '40s was the master of overlapping dialogue. Later Federico Fellini took the technique further by adding layers of speech and sound in post-production. Altman preferred to get his sound live on set, setting a considerable technical challenge for his sound crews.

Post-production did, however, give rise to a major feature of M*A*S*H, the PA announcements.
Written and performed by David Arkin, who also played Sergeant Vollmer, these are used as punctuation between and during scenes. Because these were added later, the characters on screen do not seem to be paying them the slightest notice, again suggesting their lack of respect for army routine.

Altman also uses dubbing to comic effect in the sequence when Trapper and Hawkeye travel to Tokyo to operate on a senator's child. As they are driven around they are heard to be 'speaking' Japanese, illustrating the irreverence of the characters while on a serious assignment.

The regular army is represented by incompetent doctor Major Frank Burns (Robert Duvall) and uptight head nurse Margaret Houlihan (Sally Kellerman). These two team up to bring the sloppiness of the command to the notice of Brigadier General Hammond but end up in bed together. Ever vigilant Radar slides the PA mic into their tent, allowing Hawkeye and the others to listen on a small loudspeaker. When the feed is switched on to the main PA, the pillow talk starts to echo back to Burns and Margaret, whose impassioned outbursts earn her the nickname of Hotlips.

Come the end of the film Hawkeye, Trapper, and Duke have made their stand against conformity, but the war and carnage goes on. While spoken credits were again nothing new in films – Orson Welles spoke those for his 1942 film The Magnificent Ambersons – the stumbling, nervous delivery of David Arkin while shots of the lead actors appear are a final swipe by Altman against the establishment. Only this time it's Hollywood he's mocking.

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